This document gives pertinent information concerning the reissuance of the VPDES Permit listed below. This permit is being processed as a Minor, Municipal permit. The discharge results from the operation of a 0.025 MGD wastewater treatment plant with expanded flow tiers of 0.075 MGD, 0.15 MGD, and 0.3 MGD included in the permit. This permit action consists of updating the proposed effluent limits to reflect the current Virginia WQS (effective January 6, 2011) and updating permit language, as appropriate. The effluent limitations and special conditions contained in this permit will maintain the Water Quality Standards of 9VAC25-260-00 et seq.

1. Facility Name and Mailing Address: Culpeper Industrial Air Park WWTP, 118 West Davis St, Ste 101, Culpeper, VA 22701 — SIC Code : 4952 WWTP

   Facility Location: 13281 Airpark Drive, Culpeper, VA 22701 — County: Culpeper

   Facility Contact Name: Paul Howard — Telephone Number: (540)727-3409

2. Permit No.: VA0068586 — Expiration Date of previous permit: October 26, 2010

   Other VPDES Permits associated with this facility: VAN020138

   Other Permits associated with this facility: None

   E2/E3/E4 Status: Not Applicable

3. Owner Name: County of Culpeper

   Owner Contact/Title: Paul Howard, Director Env Svcs — Telephone Number: (540)727-3409

4. Application Complete Date: March 12, 2010

   Permit Drafted By: Alison Thompson — Date Drafted: April 22, 2011

   Draft Permit Reviewed By: Joan Crowther — Date Reviewed: May 11, 2011

   WPM Review By: Bryant Thomas — Date Reviewed: May 16, 2011

   Public Comment Period : Start Date: 6/30/11 — End Date: 7/30/11

5. Receiving Waters Information: See Attachment 1 for the Flow Frequency Determination

Receiving Stream Name	Hubbard Run	Streamcode:	3-HUB2.30
Drainage Area at	0.483 sq.mi.	River Mile:	2.3
Stream Basin:	Rappahannock	Subbasin:	None
Section:	4	Stream Class:	III
Special Standards:	None	Waterbody ID:	E08R
7Q10 Low Flow:	0.0 MGD	7Q10 High Flow:	0.0 MGD
1Q10 Low Flow:	0.0 MGD	1Q10 High Flow:	0.0 MGD
30Q10 Low Flow:	0.0 MGD	30Q10 High Flow:	0.0 MGD
Harmonic Mean Flow:	0.0 MGD	30Q5 Flow:	0.0 MGD
303(d) Listed:	No		
TMDL Approved:	Yes (downstream)	Date TMDL Approved:	1/23/2008 (Bacteria TMDL)

6. Statutory or Regulatory Basis for Special Conditions and Effluent Limitations:

- ✓ State Water Control Law
- ✓ Clean Water Act
- ✓ VPDES Permit Regulation
- ✓ EPA NPDES Regulation
- ✓ EPA Guidelines
- ✓ Water Quality Standards
- ___ Other

7. Licensed Operator Requirements: 0.025 MGD Flow Tier – No Licensed Operator Requirement

All Other Flow Tiers – Class III

8. Reliability Class: Class II

9. Permit Characterization:

___	Private	✓	Effluent Limited	___	Possible Interstate Effect
___	Federal	✓	Water Quality Limited	___	Compliance Schedule Required
___	State	___	Toxics Monitoring Program Required	___	Interim Limits in Permit
✓	POTW	___	Pretreatment Program Required	___	Interim Limits in Other Document
✓	TMDL				

10. Wastewater Sources and Treatment Description:

Wastewater flow from the Culpeper Industrial Air Park is light and intermittent in nature, and originates from light industry businesses, primarily warehouses.

Flow is transported to the system via 3 lift stations and effluent first enters the system through two (2) equalization basins with pre-aeration. Wastewater then flows through a manifold into the aeration basin. Soda ash is then added to the aeration basin as needed at the return sludge location to control pH levels. Wastewater then flows from the aeration basin to the clarifier. Return sludge is then pumped from the bottom of the clarifier and recirculated through the aeration basin for additional treatment. Excess sludge is pumped to a holding tank at the head of the aeration basin for disposal at the Town of Remington's WWTP. Wastewater then flows through the chlorine contact tank where disinfection is provided by chlorine tablets followed by tablet dechlorination prior to post aeration and discharge to Hubbard Run.

See Attachment 2 for a facility schematic/diagram.

TABLE 1 – Outfall Description

Outfall Number	Discharge Sources	Treatment	Design Flows	Outfall Latitude and Longitude
001	Domestic and Commercial Wastewater	See Item 10 above.	0.025, 0.075, 0.15, 0.30 MGD	**38° 31' 10"** N **77° 51' 30"** W

See Attachment 3 for (Remington, DEQ #196D) topographic map.

11. Sludge Treatment and Disposal Methods:

Excess sludge is pumped from the sludge holding tank as needed and hauled by an independent contractor to the Remington WWTF in Fauquier County.

12. Discharges, Intakes, Monitoring Stations, Other Items in Vicinity of Discharge

TABLE 2	
VAR050984	An industrial stormwater discharge for the Culpeper County Airport is located on an unnamed tributary to Hubbard Run. The confluence of the unnamed tributary is less than ½ mile upstream of the Airpark STP discharge.
VAG406023	A small municipal discharge serving one single family home is located on an unnamed tributary to Hubbard Run. The confluence of the unnamed tributary is less than ½ mile downstream of the Airpark STP discharge. This discharge is less than 1,000 gpd.
3-RPP147.49	An ambient water quality monitoring station is located on the Rappahannock River at the Rt. 15 & 29 bridge. This station is near the confluence of Hubbard Run and approximately 2.4 miles downstream of the Airpark STP discharge.

13. Material Storage:

TABLE 3 - Material Storage		
Materials Description	Volume Stored	Spill/Stormwater Prevention Measures
Chlorination Tablets	Maximum 900 lbs	Stored indoors
Dechlorination Tablets	Maximum 900 lbs	Stored indoors
Diesel Fuel	100 gallons	Fuel Tank with containment

14. Site Inspection:

The last full Technical and Laboratory inspection of this facility was done by DEQ-NRO Compliance Staff on November 2, 2006. A copy of the technical inspection is found in Attachment 4.

15. Receiving Stream Water Quality and Water Quality Standards:

a) Ambient Water Quality Data

Hubbard Run flows directly into the Rappahannock River. The nearest downstream DEQ monitoring station with ambient data is Station RPP147.49, located on the Rappahannock River at the Route 29 bridge crossing. This station is located in Assessment Unit VAN-E08R_RPP2A02, which extends from the confluence with Ruffans Run, downstream to the confluence with Tinpot Run. This station is approximately 2.4 miles downstream from the outfall. *E. coli* monitoring found a bacterial impairment which resulted in an impaired classification for the recreation use. DEQ benthic macroinvertebrate biological monitoring and associated chemical data finds this segment to be fully supporting both the aquatic and wildlife uses. The fish consumption use was not assessed.

Significant portions of the Chesapeake Bay and its tributaries are listed as impaired on Virginia's 303(d) list of impaired waters for not meeting the aquatic life use support goal, and the 2010 Virginia Water Quality Assessment 305(b)/303(d) Integrated Report indicates that much of the mainstem Bay does not fully support this use support goal under Virginia's Water Quality Assessment guidelines. Nutrient enrichment is cited as one of the primary causes of impairment. EPA issued the Bay TMDL on December 29, 2010. It was based, in part, on the Watershed Implementation Plans developed by the Bay watershed states and the District of Columbia.

The Chesapeake Bay TMDL addresses all segments of the Bay and its tidal tributaries that are on the impaired waters list. As with all TMDLs, a maximum aggregate watershed pollutant loading necessary to achieve the Chesapeake Bay's water quality standards has been identified. This aggregate watershed loading is divided among the Bay states and their major tributary basins, as well as by major source categories [wastewater, urban storm water, onsite/septic agriculture, air deposition].

The full planning statement can be found in the reissuance file.

b) Receiving Stream Water Quality Criteria

Part IX of 9VAC25-260(360-550) designates classes and special standards applicable to defined Virginia river basins and sections. The receiving stream Hubbard Run is located within Section 4 of the Rappahannock River Basin, and classified as a Class III water.

At all times, Class III waters must achieve a dissolved oxygen (D.O.) of 4.0 mg/L or greater, a daily average D.O. of 5.0 mg/L or greater, a temperature that does not exceed 32°C, and maintain a pH of 6.0-9.0 standard units (S.U.).

Attachment 5 details other water quality criteria applicable to the receiving stream.

Ammonia:
The 7Q10 and 1Q10 of the receiving stream are 0.0 MGD. In cases such as this, effluent pH and temperature data may be used to establish the ammonia water quality criteria. Staff has reviewed the effluent data for pH and temperature from the daily logs submitted with the DMRs. The 90th percentile pH value for the effluent is 7.9 S.U. and was derived from data from September 2009 to March 2011 (Attachment 5). The 90th percentile annual temperature is 22.09°C and the 90th percentile wet season (November-April) temperature is 15°C. The calculated ammonia water quality criteria can be found in Attachment 5.

Metals Criteria:
The Water Quality Criteria for some metals are dependent on the receiving stream's hardness (expressed as mg/L calcium carbonate).There is no hardness data for this facility. Staff guidance suggests using a default hardness value of 50 mg/L $CaCO_3$ for streams east of the Blue Ridge. The hardness-dependent metals criteria in Attachment 5 are based on this default value.

Bacteria Criteria:
The Virginia Water Quality Standards at 9VAC25-260-170A state that the following criteria shall apply to protect primary recreational uses in surface waters:

1) *E. coli* bacteria per 100 ml of water shall not exceed a monthly geometric mean of the following:

	Geometric Mean[1]
Freshwater *E. coli* (N/100 ml)	126

[1]For a minimum of four weekly samples [taken during any calendar month].

c) Receiving Stream Special Standards

The State Water Control Board's Water Quality Standards, River Basin Section Tables (9VAC25-260-360, 370 and 380) designates the river basins, sections, classes, and special standards for surface waters of the Commonwealth of Virginia. The receiving stream, Hubbard Run, is located within Section 4 of the Rappahannock River Basin. This section has been designated with no special standards.

d) Threatened or Endangered Species

The Virginia DGIF Fish and Wildlife Information System Database was searched on April 13, 2011, for records to determine if there are threatened or endangered species in the vicinity of the discharge. No threatened or endangered species were identified. The limits proposed in this draft permit are protective of the Virginia Water Quality Standards and protect the threatened and endangered species found near the discharge.

The stream that the facility discharges to is within a reach identified as having an Anadromous Fish Use. It is staff's best professional judgment that the proposed limits are protective of this use.

16. Antidegradation (9VAC25-260-30):

All state surface waters are provided one of three levels of antidegradation protection. For Tier 1 or existing use protection, existing uses of the water body and the water quality to protect these uses must be maintained. Tier 2 water bodies have water quality that is better than the water quality standards. Significant lowering of the water quality of Tier 2 waters is not allowed without an evaluation of the economic and social impacts. Tier 3 water bodies are exceptional waters and are so designated by regulatory amendment. The antidegradation policy prohibits new or expanded discharges into exceptional waters.

The receiving stream has been classified as Tier 1 based on an evaluation of the stream's critical flows. The critical flows for the stream are zero and at times the stream flow is comprised of only effluent. It is staff's best professional judgment that such streams are Tier I since the limits are set to meet the WQS. Permit limits proposed have been established by determining wasteload allocations which will result in attaining and/or maintaining all water quality criteria which apply to the receiving stream, including narrative criteria. These wasteload allocations will provide for the protection and maintenance of all existing uses.

17. Effluent Screening, Wasteload Allocation, and Effluent Limitation Development:

To determine water quality-based effluent limitations for a discharge, the suitability of data must first be determined. Data is suitable for analysis if one or more representative data points is equal to or above the quantification level ("QL") and the data represent the exact pollutant being evaluated.

Next, the appropriate Water Quality Standards (WQS) are determined for the pollutants in the effluent. Then, the Wasteload Allocations (WLA) are calculated. In this case since the critical flows 7Q10 and 1Q10 have been determined to be zero, the WLA's are equal to the WQS. The WLA values are then compared with available effluent data to determine the need for effluent limitations. Effluent limitations are needed if the 97th percentile of the daily effluent concentration values is greater than the acute wasteload allocation or if the 97th percentile of the four-day average effluent concentration values is greater than the chronic wasteload allocation. Effluent limitations are based on the most limiting WLA, the required sampling frequency, and statistical characteristics of the effluent data.

a) Effluent Screening:
Effluent data obtained from the Discharge Monitoring Reports has been reviewed and determined to be suitable for evaluation. Effluent data were reviewed, and there have been no exceedances of the established limitations. The following pollutants require a wasteload allocation analysis: Ammonia as N and Total Residual Chlorine.

b) Mixing Zones and Wasteload Allocations (WLAs):

Wasteload allocations (WLAs) are calculated for those parameters in the effluent with the reasonable potential to cause an exceedance of water quality criteria. The basic calculation for establishing a WLA is the steady state complete mix equation:

$$WLA = \frac{C_o [Q_e + (f) (Q_s)] - [(C_s) (f) (Q_s)]}{Q_e}$$

Where:
- WLA = Wasteload allocation
- C_o = In-stream water quality criteria
- Q_e = Design flow
- Q_s = Critical receiving stream flow (1Q10 for acute aquatic life criteria; 7Q10 for chronic aquatic life criteria; 30Q10 for ammonia criteria; harmonic mean for carcinogen-human health criteria; and 30Q5 for non-carcinogen human health criteria)
- f = Decimal fraction of critical flow
- C_s = Mean background concentration of parameter in the receiving stream.

The water segment receiving the discharge via Outfall 001 is considered to have a 7Q10 and 1Q10 of 0.0 MGD. As such, there is no mixing zone and the WLA is equal to the C_o.

c) Effluent Limitations Toxic Pollutants, Outfall 001 –

9VAC25-31-220.D. requires limits be imposed where a discharge has a reasonable potential to cause or contribute to an in-stream excursion of water quality criteria. Those parameters with WLAs that are near effluent concentrations are evaluated for limits.

The VPDES Permit Regulation at 9VAC25-31-230.D requires that monthly and weekly average limitations be imposed for continuous discharges from POTWs and monthly average and daily maximum limitations be imposed for all other continuous non-POTW discharges.

1) Ammonia as N/TKN:

0.025 MGD flow tier
Staff reevaluated pH and temperature and has concluded it is significantly different than what was used previously to derive ammonia criteria. As result, staff used the new data to determine new ammonia water quality criteria, new wasteload allocations (WLAs) and new ammonia limits (Attachment 6). DEQ guidance suggests using a sole data point of 9.0 mg/L for discharges containing domestic sewage to ensure the evaluation adequately addresses the potential for ammonia to be present in the discharge containing domestic sewage. Although the new criteria would allow for a relaxation of the ammonia limitations, staff has no basis to allow backsliding. Changes in regulation as specifically excluded as a basis for backsliding; therefore, the current limitations are proposed to be carried forward with this reissuance. The derivation of the current limitations is also found in Attachment 6.

0.075 MGD, 0.15 MGD, and 0.30 MGD flow tiers
No changes are proposed with the established limitations. During the 2000 reissuance, staff made the determination that marsh characteristics exist downstream of the outfall. Guidance states that a year round limit of 3.0 mg/L TKN should be used when a facility discharges to waters that cannot be easily modeled. A TKN limit of 3.0 mg/L assumes that the remaining nitrogen is in the form of refractory organic compounds that will not be easily oxidized and that ammonia is removed when the 3.0 mg/L TKN limit is met. The weekly average limit will be 4.5 mg/L based on a multiplier of 1.5 times the monthly average.

2) Total Residual Chlorine:

0.025 MGD flow tier
Chlorine is used for disinfection and is potentially in the discharge. Staff calculated WLAs for TRC using current critical flows and current water quality criteria. In accordance with current DEQ guidance, staff used a default data point of 0.2 mg/L and the calculated WLAs to derive limits. A monthly average of 0.008 mg/L and a weekly average limit of 0.010 mg/L are proposed for this discharge (Attachment 6).

0.075 MGD, 0.15 MGD, and 0.30 MGD flow tiers

Chlorine is used for disinfection and is potentially in the discharge. Staff calculated WLAs for TRC using current critical flows and current water quality criteria. In accordance with current DEQ guidance, staff used a default data point of 0.2 mg/L and the calculated WLAs to derive limits. The frequency of the monitoring of the effluent has increased from 1/Day to 3/Day which has slightly changed the proposed effluent limitations at the expanded flow tiers. A monthly average of 0.007 mg/L and a weekly average limit of 0.008 mg/L are proposed for this discharge (Attachment 6).

d) Effluent Limitations and Monitoring, Outfall 001 – Conventional and Non-Conventional Pollutants

0.025 MGD flow tier

No changes to dissolved oxygen (D.O.), biochemical oxygen demand-5 day (BOD_5), total suspended solids (TSS), and pH limitations are proposed. Dissolved Oxygen and BOD_5 limitations are based on the stream modeling conducted in December 1984 (Attachment 7) and are set to meet the water quality criteria for D.O. in the receiving stream and are also in accordance with 9VAC25-31-30 which incorporate the Federal Effluent Guidelines for Secondary Treatment (40CFR Part 133). It is staff's practice to equate the Total Suspended Solids limits with the BOD_5 limits. TSS limits are established to equal BOD_5 limits since the two pollutants are closely related in terms of treatment of domestic sewage.

pH limitations are set at the water quality criteria.

E. coli limitations are in accordance with the Water Quality Standards 9VAC25-260-170.

0.075 MGD, 0.15 MGD, and 0.30 MGD flow tiers

No changes to the dissolved oxygen (D.O.), carbonaceous biochemical oxygen demand-5 day ($CBOD_5$), total suspended solids (TSS), and pH limitations are proposed. During the 2000 reissuance, staff made the determination that marsh characteristics exist downstream of the outfall. Carbonaceous biochemical oxygen demand 5-day ($CBOD_5$), TSS, Dissolved Oxygen, and TKN limitations were based on best professional judgement and Guidance Memo 00-2011. This guidance is applicable to waters such as this portion of Hubbard Run where the water is shallow, flow is intermittent, and the waters cannot be modeled.

It is staff's practice to equate the Total Suspended Solids limits with the $CBOD_5$ limits. TSS limits are established to equal $CBOD_5$ limits since the two pollutants are closely related in terms of treatment of domestic sewage.

pH limitations are set at the water quality criteria.

E. coli limitations are in accordance with the Water Quality Standards 9VAC25-260-170.

e) Effluent Annual Average Limitations and Monitoring, Outfall 001 – Nutrients

VPDES Regulation 9VAC25-31-220(D) requires effluent limitations that are protective of both the numerical and narrative water quality standards for state waters, including the Chesapeake Bay.

As discussed in Section 15, significant portions of the Chesapeake Bay and its tributaries are listed as impaired with nutrient enrichment cited as one of the primary causes. Virginia has committed to protecting and restoring the Bay and its tributaries. Only concentration limits are now found in the individual VPDES permit when the facility installs nutrient removal technology. The basis for the concentration limits is 9VAC25-40 - *Regulation for Nutrient Enriched Waters and Dischargers within the Chesapeake Bay Watershed* which requires new or expanding discharges with design flows of $\geq$0.04 MGD to treat for TN and TP to either BNR levels (TN = 8 mg/L; TP = 1.0 mg/L) or SOA levels (TN = 3.0 mg/L and TP = 0.3 mg/L).

This facility has also obtained coverage under 9VAC25-820 *General Virginia Pollutant Discharge Elimination System (VPDES) Watershed Permit Regulation for Total Nitrogen and Total Phosphorus Discharges and Nutrient Trading in the Chesapeake Bay Watershed in Virginia.* This regulation specifies and controls the nitrogen and phosphorus loadings from facilities and specifies facilities that must register under the general permit. Nutrient loadings for those facilities registered under the general permit as well as

compliance schedules and other permit requirements, shall be authorized, monitored, limited, and otherwise regulated under the general permit and not this individual permit. This facility has coverage under this General Permit; the permit number is VAN020138. Total Nitrogen Annual Loads and Total Phosphorus Annual Loads from this facility are found in General Permit Registration List.

Monitoring for Nitrates + Nitrites, Total Kjeldahl Nitrogen, Total Nitrogen, and Total Phosphorus are included in this permit for all flow tiers except the existing tier of 0.025 MGD. The monitoring is needed to protect the Water Quality Standards of the Chesapeake Bay. Monitoring frequencies are set at the frequencies set forth in 9VAC25-820. Annual average effluent limitations, as well as monthly and year to date calculations, for Total Nitrogen and Total Phosphorus are included in this individual permit. The annual averages for the 0.075 and 0.15 MGD flow tiers are based on the permitted design capacity assigned to the facility at 9VAC25-720-70; the concentrations will insure that the facility will be able to comply with the Total Nitrogen and Total Phosphorus Annual Loads. The annual averages for the 0.30 MGD flow tier are based on 9VAC25-40 and the permitted design capacity assigned to the facility at 9VAC25-720-70; the facility has submitted an offset plan as part of their registration statement for the General Permit.

f) Effluent Limitations and Monitoring Summary.

The effluent limitations are presented in the following table. Limits were established for Flow, BOD_5, $CBOD_5$, Total Suspended Solids, Ammonia as N, TKN, pH, Dissolved Oxygen, *E. coli,* Total Residual Chlorine, Total Nitrogen, and Total Phosphorus.

The limit for Total Suspended Solids is based on Best Professional Judgement.

The mass loading (kg/d) for monthly and weekly averages were calculated by multiplying the concentration values (mg/L), with the flow values (in MGD) and a conversion factor of 3.785.

Sample Type and Frequency are in accordance with the recommendations in the VPDES Permit Manual except for the composite period for the conventional parameters at the 0.075 MGD flow tier. The Water Permit Manual recommends a 4-hour composite sample at the 0.075 MGD flow tier; 9VAC25-820 *General Virginia Pollutant Discharge Elimination System (VPDES) Watershed Permit Regulation for Total Nitrogen and Total Phosphorus Discharges and Nutrient Trading in the Chesapeake Bay Watershed in Virginia* requires an 8-hour composite. In order to simplify sample collection, all composites shall be 8-hour composites.

The VPDES Permit Regulation at 9VAC25-31-30 and 40 CFR Part 133 require that the facility achieve at least 85% removal for CBOD and TSS (or 65% for equivalent to secondary). The limits in this permit are water-quality-based effluent limits and effluent limits demonstrate that there is greater than 85% removal.

18. Antibacksliding:

All limits in this permit are at least as stringent as those previously established. Backsliding does not apply to this reissuance.

19.a. Effluent Limitations/Monitoring Requirements:

Design flow of this Municipal Facility is 0.025 MGD.

Effective Dates: During the period beginning with the permit's effective date and lasting until the issuance of a Certificate to Operate (CTO) for the 0.075 MGD, 0.15 MGD, or 0.30 MGD facility or the permit's expiration date, whichever occurs first.

PARAMETER	BASIS FOR LIMITS	DISCHARGE LIMITATIONS				MONITORING REQUIREMENTS	
		Monthly Average	Weekly Average	Minimum	Maximum	Frequency	Sample Type
Flow (MGD)	NA	NL	NA	NA	NL	1/D	Estimate
BOD_5	1, 5	30 mg/L 2.8 kg/day	45 mg/L 4.3 kg/day	NA	NA	1/M	Grab
Total Suspended Solids	1, 2	30 mg/L 2.8 kg/day	45 mg/L 4.3 kg/day	NA	NA	1/M	Grab
Ammonia, as N (November - April)	3	3.1 mg/L	3.1 mg/L	NA	NA	1/M	Grab
Ammonia, as N (May - October)	3	2.1 mg/L	2.1 mg/L	NA	NA	1/M	Grab
pH	3	NA	NA	6.0 S.U.	9.0 S.U.	1/D	Grab
Dissolved Oxygen	3	NA	NA	6.0 mg/L	NA	1/D	Grab
E. coli (Geometric Mean)[(a)(b)]	3	126 n/cmL	NA	NA	NA	1/W	Grab
Total Residual Chlorine (After Chlorine Contact Tank)	4	NA	NA	1.0 mg/L	NA	1/D	Grab
Total Residual Chlorine (After Dechlorination)	3	0.008 mg/L	0.010 mg/L	NA	NA	1/D	Grab

The basis for the limitations codes are:

1. Federal Effluent Requirements
2. Best Professional Judgment
3. Water Quality Standards
4. DEQ Disinfection Policy
5. Stream model – Attachment 7

MGD = Million gallons per day.
NA = Not applicable.
NL = No limit; monitor and report.
S.U. = Standard units.

1/D = Once every day.
1/W = Once every week.
1/M = Once per month.

Estimate = Reported flow is to be based on the technical evaluation of the sources contributing to the discharge.

Grab = An individual sample collected over a period of time not to exceed 15-minutes.

a. Samples shall be collected between 10:00 a.m. and 4:00 p.m.

b. The permittee shall sample and submit *E. coli* results at the frequency of once every week for three (3) months. If all reported results for *E. coli* do not exceed 126 n/100mL, reported as the geometric mean, the permittee may submit a written request to DEQ-NRO for a reduction in the sampling frequency to once per quarter.

Upon approval, the permittee shall collect four (4) weekly samples during one month within each quarterly monitoring period as defined below. The results shall be reported as the geometric mean. The quarterly monitoring periods shall be January through March, April through June, July through September and October through December. The DMR shall be submitted no later than the 10th day of the month following the monitoring period.

Should any of the quarterly monitoring results for *E. coli* exceed 126 n/100mL, reported as the geometric mean, the monitoring frequency shall revert to once per week for the remainder of the permit term.

19.b. Effluent Limitations/Monitoring Requirements:

Design flow is 0.075 MGD.

Effective Dates: During the period beginning with the Certificate to Operate (CTO) for the 0.075 MGD flow tier, and lasting until the issuance of the CTO for the 0.15 MGD or 0.30 MGD facility or the permit's expiration date, whichever occurs first.

PARAMETER	BASIS FOR LIMITS	DISCHARGE LIMITATIONS				MONITORING REQUIREMENTS	
		Monthly Average	Weekly Average	Minimum	Maximum	Frequency	Sample Type
Flow (MGD)	NA	NL	NA	NA	NL	Continuous	TIRE
pH	3	NA	NA	6.0 S.U.	9.0 S.U.	1/D	Grab
$CBOD_5$	2, 3	10 mg/L 2.8 kg/day	15 mg/L 4.3 kg/day	NA	NA	1/W	8H-C
Total Suspended Solids (TSS)	2	10 mg/L 2.8 kg/day	15 mg/L 4.3 kg/day	NA	NA	1/W	8H-C
Dissolved Oxygen	3	NA	NA	6.0 mg/L	NA	1/D	Grab
Total Kjeldahl Nitrogen (TKN)	2, 3	3.0 mg/L 0.85 kg/day	4.5 mg/L 1.3 kg/day	NA	NA	1/W	8H-C
E. coli (Geometric Mean)[c)(d)]	3	126 n/100mls	NA	NA	NA	1/W	Grab
Total Residual Chlorine (after contact tank)	3, 4	NA	NA	1.0 mg/L	NA	3/D at 4-hr Intervals	Grab
Total Residual Chlorine (after dechlorination)	3	0.007 mg/L	0.008 mg/L	NA	NA	3/D at 4-hr Intervals	Grab
Nitrate+Nitrite, as N	3, 6	NL mg/L	NA	NA	NA	2/M	8H-C
Total Nitrogen [a.]	3, 6	NL mg/L	NA	NA	NA	2/M	Calculated
Total Nitrogen – Year to Date [b.]	3, 6	NL mg/L	NA	NA	NA	1/M	Calculated
Total Nitrogen - Calendar Year [b.]	3, 6	6.2 mg/L	NA	NA	NA	1/YR	Calculated
Total Phosphorus	3, 6	NL mg/L	NA	NA	NA	2/M	8H-C
Total Phosphorus – Year to Date [b.]	3, 6	NL mg/L	NA	NA	NA	1/M	Calculated
Total Phosphorus - Calendar Year [b.]	3, 6	0.83 mg/L	NA	NA	NA	1/YR	Calculated

The basis for the limitations codes are:

1. Federal Effluent Requirements
2. Best Professional Judgment
3. Water Quality Standards
4. DEQ Disinfection Guidance
5. Stream Model- Attachment 7
6. 9VAC25-720 (WQMP Regulation)

MGD = Million gallons per day.
NA = Not applicable.
NL = No limit; monitor and report.
S.U. = Standard units.
TIRE = Totalizing, indicating and recording equipment.

1/D = Once every day.
3/D = Three per day at 4 hour intervals.
1/W = Once every week.
1/M = Once every month.
2/M = Twice every month, >7 days apart
1/YR = Once every calendar year.

8H-C = A flow proportional composite sample collected manually or automatically, and discretely or continuously, for the entire discharge of the monitored 8-hour period. Where discrete sampling is employed, the permittee shall collect a minimum of eight (8) aliquots for compositing. Discrete sampling may be flow proportioned either by varying the time interval between each aliquot or the volume of each aliquot. Time composite samples consisting of a minimum eight (8) grab samples obtained at hourly or smaller intervals may be collected where the permittee demonstrates that the discharge flow rate (gallons per minute) does not vary by ≥10% or more during the monitored discharge.

Grab = An individual sample collected over a period of time not to exceed 15-minutes.

a. Total Nitrogen = Sum of TKN plus Nitrate+Nitrite

b. See Section 20.a. for the calculation of the Nutrient Calculations. The calendar year annual averages for Total Nitrogen and Total Phosphorus are effective January 1st of the year after issuance of the CTO for the expanded facility.

c. Samples shall be collected between 10:00 a.m. and 4:00 p.m.

d. The permittee shall sample and submit *E. coli* results at the frequency of once every week for three (3) months. If all reported results for *E. coli* do not exceed 126 n/100mL, reported as the geometric mean, the permittee may submit a written request to DEQ-NRO for a reduction in the sampling frequency to once per quarter.

Upon approval, the permittee shall collect four (4) weekly samples during one month within each quarterly monitoring period as defined below. The results shall be reported as the geometric mean. The quarterly monitoring periods shall be January through March, April through June, July through September and October through December. The DMR shall be submitted no later than the 10th day of the month following the monitoring period.

Should any of the quarterly monitoring results for *E. coli* exceed 126 n/100mL, reported as the geometric mean, the monitoring frequency shall revert to once per week for the remainder of the permit term.

19.c. Effluent Limitations/Monitoring Requirements:

Design flow is 0.15 MGD.

Effective Dates: During the period beginning with the Certificate to Operate (CTO) for the 0.15 MGD flow tier, and lasting until the issuance of the CTO for the 0.30 MGD facility or the permit's expiration date, whichever occurs first.

PARAMETER	BASIS FOR LIMITS	DISCHARGE LIMITATIONS				MONITORING REQUIREMENTS	
		Monthly Average	Weekly Average	Minimum	Maximum	Frequency	Sample Type
Flow (MGD)	NA	NL	NA	NA	NL	Continuous	TIRE
pH	3	NA	NA	6.0 S.U.	9.0 S.U.	1/D	Grab
$CBOD_5$	2, 3	10 mg/L 5.7 kg/day	15 mg/L 8.5 kg/day	NA	NA	3D/W	8H-C
Total Suspended Solids (TSS)	2	10 mg/L 5.7 kg/day	15 mg/L 8.5 kg/day	NA	NA	3D/W	8H-C
Dissolved Oxygen	3	NA	NA	6.0 mg/L	NA	1/D	Grab
Total Kjeldahl Nitrogen (TKN)	2, 3	3.0 mg/L 1.7 kg/day	4.5 mg/L 2.6 kg/day	NA	NA	3D/W	8H-C
E. coli (Geometric Mean)[c)(d)]	3	126 n/100mls	NA	NA	NA	1/W	Grab
Total Residual Chlorine (after contact tank)	3, 4	NA	NA	1.0 mg/L	NA	3/D at 4-hr Intervals	Grab
Total Residual Chlorine (after dechlorination)	3	0.007 mg/L	0.008 mg/L	NA	NA	3/D at 4-hr Intervals	Grab
Nitrate+Nitrite, as N	3, 6	NL mg/L	NA	NA	NA	2/M	8H-C
Total Nitrogen [a.]	3, 6	NL mg/L	NA	NA	NA	2/M	Calculated
Total Nitrogen – Year to Date [b.]	3, 6	NL mg/L	NA	NA	NA	1/M	Calculated
Total Nitrogen - Calendar Year [b.]	3, 6	3.1 mg/L	NA	NA	NA	1/YR	Calculated
Total Phosphorus	3, 6	NL mg/L	NA	NA	NA	2/M	8H-C
Total Phosphorus – Year to Date [b.]	3, 6	NL mg/L	NA	NA	NA	1/M	Calculated
Total Phosphorus - Calendar Year [b.]	3, 6	0.41 mg/L	NA	NA	NA	1/YR	Calculated

The basis for the limitations codes are:

1. Federal Effluent Requirements
2. Best Professional Judgment
3. Water Quality Standards
4. DEQ Disinfection Guidance
5. Stream Model- Attachment 7
6. 9VAC25-720 (WQMP Regulation)

MGD = Million gallons per day.
NA = Not applicable.
NL = No limit; monitor and report.
S.U. = Standard units.
TIRE = Totalizing, indicating and recording equipment.

1/D = Once every day.
3/D = Three per day at 4 hour intervals.
3D/W = Three days every week.
1/M = Once every month.
2/M = Twice every month, >7 days apart
1/YR = Once every calendar year.

8H-C = A flow proportional composite sample collected manually or automatically, and discretely or continuously, for the entire discharge of the monitored 8-hour period. Where discrete sampling is employed, the permittee shall collect a minimum of eight (8) aliquots for compositing. Discrete sampling may be flow proportioned either by varying the time interval between each aliquot or the volume of each aliquot. Time composite samples consisting of a minimum eight (8) grab samples obtained at hourly or smaller intervals may be collected where the permittee demonstrates that the discharge flow rate (gallons per minute) does not vary by ≥10% or more during the monitored discharge.

Grab = An individual sample collected over a period of time not to exceed 15-minutes.

a. Total Nitrogen = Sum of TKN plus Nitrate+Nitrite

b. See Section 20.a. for the calculation of the Nutrient Calculations. The calendar year annual averages for Total Nitrogen and Total Phosphorus are effective January 1st of the year after issuance of the CTO for the expanded facility.

c. Samples shall be collected between 10:00 a.m. and 4:00 p.m.

d. The permittee shall sample and submit *E. coli* results at the frequency of once every week for three (3) months. If all reported results for *E. coli* do not exceed 126 n/100mL, reported as the geometric mean, the permittee may submit a written request to DEQ-NRO for a reduction in the sampling frequency to once per quarter.

Upon approval, the permittee shall collect four (4) weekly samples during one month within each quarterly monitoring period as defined below. The results shall be reported as the geometric mean. The quarterly monitoring periods shall be January through March, April through June, July through September and October through December. The DMR shall be submitted no later than the 10th day of the month following the monitoring period.

Should any of the quarterly monitoring results for *E. coli* exceed 126 n/100mL, reported as the geometric mean, the monitoring frequency shall revert to once per week for the remainder of the permit term.

19.d. Effluent Limitations/Monitoring Requirements:

Design flow is 0.30 MGD.

Effective Dates: During the period beginning with the Certificate to Operate (CTO) for the 0.30 MGD flow tier, and lasting until the permit's expiration date.

PARAMETER	BASIS FOR LIMITS	DISCHARGE LIMITATIONS				MONITORING REQUIREMENTS	
		Monthly Average	Weekly Average	Minimum	Maximum	Frequency	Sample Type
Flow (MGD)	NA	NL	NA	NA	NL	Continuous	TIRE
pH	3	NA	NA	6.0 S.U.	9.0 S.U.	1/D	Grab
$CBOD_5$	2, 3	10 mg/L 11 kg/day	15 mg/L 17 kg/day	NA	NA	3D/W	8H-C
Total Suspended Solids (TSS)	2	10 mg/L 11 kg/day	15 mg/L 17 kg/day	NA	NA	3D/W	8H-C
Dissolved Oxygen	3	NA	NA	6.0 mg/L	NA	1/D	Grab
Total Kjeldahl Nitrogen (TKN)	2, 3	3.0 mg/L 3.4 kg/day	4.5 mg/L 5.1 kg/day	NA	NA	3D/W	8H-C
E. coli (Geometric Mean)[(c)(d)]	3	126 n/100mls	NA	NA	NA	1/W	Grab
Total Residual Chlorine (after contact tank)	3, 4	NA	NA	1.0 mg/L	NA	3/D at 4-hr Intervals	Grab
Total Residual Chlorine (after dechlorination)	3	0.007 mg/L	0.008 mg/L	NA	NA	3/D at 4-hr Intervals	Grab
Nitrate+Nitrite, as N	3, 6	NL mg/L	NA	NA	NA	2/M	8H-C
Total Nitrogen [a.]	3, 6	NL mg/L	NA	NA	NA	2/M	Calculated
Total Nitrogen – Year to Date [b.]	3, 6	NL mg/L	NA	NA	NA	1/M	Calculated
Total Nitrogen - Calendar Year [b.]	3, 6	3.0 mg/L	NA	NA	NA	1/YR	Calculated
Total Phosphorus	3, 6	NL mg/L	NA	NA	NA	2/M	8H-C
Total Phosphorus – Year to Date [b.]	3, 6	NL mg/L	NA	NA	NA	1/M	Calculated
Total Phosphorus - Calendar Year [b.]	3, 6	0.30 mg/L	NA	NA	NA	1/YR	Calculated

The basis for the limitations codes are:

1. Federal Effluent Requirements
2. Best Professional Judgment
3. Water Quality Standards
4. DEQ Disinfection Guidance
5. Stream Model- Attachment 7
6. 9VAC25-40 (Nutrient Regulation)

MGD = Million gallons per day.
NA = Not applicable.
NL = No limit; monitor and report.
S.U. = Standard units.
TIRE = Totalizing, indicating and recording equipment.

1/D = Once every day.
3/D = Three per day at 4 hour intervals.
3D/W = Three days every week.
1/M = Once every month.
2/M = Twice every month, >7 days apart
1/YR = Once every calendar year.

8H-C = A flow proportional composite sample collected manually or automatically, and discretely or continuously, for the entire discharge of the monitored 8-hour period. Where discrete sampling is employed, the permittee shall collect a minimum of eight (8) aliquots for compositing. Discrete sampling may be flow proportioned either by varying the time interval between each aliquot or the volume of each aliquot. Time composite samples consisting of a minimum eight (8) grab samples obtained at hourly or smaller intervals may be collected where the permittee demonstrates that the discharge flow rate (gallons per minute) does not vary by ≥10% or more during the monitored discharge.

Grab = An individual sample collected over a period of time not to exceed 15-minutes.

a. Total Nitrogen = Sum of TKN plus Nitrate+Nitrite

b. See Section 20.a. for the calculation of the Nutrient Calculations. The calendar year annual averages for Total Nitrogen and Total Phosphorus are effective January 1st of the year after issuance of the CTO for the expanded facility.

c. Samples shall be collected between 10:00 a.m. and 4:00 p.m.

d. The permittee shall sample and submit *E. coli* results at the frequency of once every week for three (3) months. If all reported results for *E. coli* do not exceed 126 n/100mL, reported as the geometric mean, the permittee may submit a written request to DEQ-NRO for a reduction in the sampling frequency to once per quarter.

Upon approval, the permittee shall collect four (4) weekly samples during one month within each quarterly monitoring period as defined below. The results shall be reported as the geometric mean. The quarterly monitoring periods shall be January through March, April through June, July through September and October through December. The DMR shall be submitted no later than the 10th day of the month following the monitoring period.

Should any of the quarterly monitoring results for *E. coli* exceed 126 n/100mL, reported as the geometric mean, the monitoring frequency shall revert to once per week for the remainder of the permit term.

20. Other Permit Requirements:

a) Part I.B. of the permit contains additional chlorine monitoring requirements, quantification levels and compliance reporting instructions.
These additional chlorine requirements are necessary per the Sewage Collection and Treatment Regulations at 9VAC25-70 and by the Water Quality Standards at 9VAC25-260-170. A minimum chlorine residual must be maintained at the exit of the chlorine contact tank to assure adequate disinfection. No more that 10% of the monthly test results for TRC at the exit of the chlorine contact tank shall be <1.0 mg/L with any TRC <0.6 mg/L considered a system failure. Monitoring at numerous STPs has concluded that a TRC residual of 1.0 mg/L is an adequate indicator of compliance with the *E. coli* criteria. *E. coli* limits are defined in this section as well as monitoring requirements to take effect should an alternate means of disinfection be used.

Flow Tier	Frequency	
0.025 MGD	1/Week	Between 10:00 a.m. and 4:00 p.m.
0.075 MGD	2 Days/Week	Between 10:00 a.m. and 4:00 p.m.
0.15 MGD	3 Days/Week	Between 10:00 a.m. and 4:00 p.m.
0.30 MGD	3 Days/Week	Between 10:00 a.m. and 4:00 p.m.

9VAC25-31-190.L.4.c. requires an arithmetic mean for measurement averaging and 9VAC25-31-220.D. requires limits be imposed where a discharge has a reasonable potential to cause or contribute to an in-stream excursion of water quality criteria. Specific analytical methodologies for toxics are listed in this permit section as well as quantification levels (QLs) necessary to demonstrate compliance with applicable permit limitations or for use in future evaluations to determine if the pollutant has reasonable potential to cause or contribute to a violation. Required averaging methodologies are also specified.

The calculations for the Nitrogen and Phosphorus parameters shall be in accordance with the calculations set forth in 9VAC25-820 *General Virginia Pollutant Discharge Elimination System (VPDES) Watershed Permit Regulation for Total Nitrogen and Total Phosphorus Discharges and Nutrient Trading in the Chesapeake Bay Watershed in Virginia.* §62.1-44.19:13 of the Code of Virginia defines how annual nutrient loads are to be calculated; this is carried forward in 9VAC25-820-70. As annual concentrations (as opposed to loads) are limited in the individual permit, these reporting calculations are intended to reconcile the reporting calculations between the permit programs, as the permittee is collecting a single set of samples for the purpose of ascertaining compliance with two permits.

21. Other Special Conditions:

a) 95% Capacity Reopener. The VPDES Permit Regulation at 9VAC25-31-200.B.4. requires all POTWs and PVOTWs develop and submit a plan of action to DEQ when the monthly average influent flow to their sewage treatment plant reaches 95% or more of the design capacity authorized in the permit for each month of any three consecutive month period. This facility is a POTW.

b) Indirect Dischargers. Required by VPDES Permit Regulation, 9VAC25-31-200 B.1. and B.2. for POTWs and PVOTWs that receive waste from someone other than the owner of the treatment works.

c) O&M Manual Requirement. Required by Code of Virginia §62.1-44.19; Sewage Collection and Treatment Regulations, 9VAC25-790; VPDES Permit Regulation, 9VAC25-31-190.E. Within 90 days of the effective date of this permit, the permittee shall submit for approval an Operations and Maintenance (O&M) Manual or a statement confirming the accuracy and completeness of the current O&M Manual to the Department of Environmental Quality, Northern Regional Office (DEQ-NRO). Future changes to the facility must be addressed by the submittal of a revised O&M Manual within 90 days of the changes. Non-compliance with the O&M Manual shall be deemed a violation of the permit.

d) CTC, CTO Requirement. The Code of Virginia § 62.1-44.19; Sewage Collection and Treatment Regulations, 9VAC25-790 requires that all treatment works treating wastewater obtain a Certificate to Construct prior to commencing construction and to obtain a Certificate to Operate prior to commencing operation of the treatment works.

e) Licensed Operator Requirement. The Code of Virginia at §54.1-2300 et seq. and the VPDES Permit Regulation at 9VAC25-31-200 C, and Rules and Regulations for Waterworks and Wastewater Works Operators (18VAC160-20-10 et seq.) requires licensure of operators. There is no licensed operator requirement for the 0.025 MGD flow tier. The facility shall require a Class III operator for all other flow tiers (0.075 MGD, 0.15 MGD, and 0.30 MGD). Within 90 days of the issuance of the CTO for any of the expanded tiers, the permittee shall notify DEQ that a wastewater operator with the appropriate class license is employed by the permittee.

f) Reliability Class. The Sewage Collection and Treatment Regulations at 9VAC25-790 require sewage treatment works to achieve a certain level of reliability in order to protect water quality and public health consequences in the event of component or system failure. Reliability means a measure of the ability of the treatment works to perform its designated function without failure or interruption of service. The facility is required to meet a reliability Class of II.

g) Water Quality Criteria Reopener. The VPDES Permit Regulation at 9VAC25-31-220 D. requires establishment of effluent limitations to ensure attainment/maintenance of receiving stream water quality criteria. Should effluent monitoring indicate the need for any water quality-based limitations, this permit may be modified or alternatively revoked and reissued to incorporate appropriate limitations.

h) Sludge Reopener. The VPDES Permit Regulation at 9VAC25-31-220.C. requires all permits issued to treatment works treating domestic sewage (including sludge-only facilities) include a reopener clause allowing incorporation of any applicable standard for sewage sludge use or disposal promulgated under Section 405(d) of the CWA. The facility includes a sewage treatment works.

i) Sludge Use and Disposal. The VPDES Permit Regulation at 9VAC25-31-100.P; 220.B.2. and 420 through 720, and 40 CFR Part 503 require all treatment works treating domestic sewage to submit information on their sludge use and disposal practices and to meet specified standards for sludge use and disposal. The facility includes a treatment works treating domestic sewage.

j) Nutrient Offsets. The Virginia General Assembly, in their 2005 session, enacted a new Article 4.02 (Chesapeake Bay Watershed Nutrient Credit Exchange Program) to the Code of Virginia to address nutrient loads to the Bay. Section 62.1-44.19:15 sets forth the requirements for new and expanded dischargers, which are captured by the requirements of the law, including the requirement that non-point load reductions acquired for the purpose of offsetting nutrient discharges be enforced through the individual VPDES permit.

k) E3/E4. 9VAC25-40-70 B authorizes DEQ to approve an alternate compliance method to the technology-based effluent concentration limitations as required by subsection A of this section. Such alternate compliance method shall be incorporated into the permit of an Exemplary Environmental Enterprise (E3) facility or an Extraordinary Environmental Enterprise (E4) facility to allow the suspension of applicable technology-based effluent concentration limitations during the period the E3 or E4 facility has a fully implemented environmental management system that includes operation of installed nutrient removal technologies at the treatment efficiency levels for which they were designed.

l) Nutrient Reopener. 9VAC25-40-70 A authorizes DEQ to include technology-based annual concentration limits in the permits of facilities that have installed nutrient control equipment, whether by new construction, expansion or upgrade. 9VAC25-31-390 A authorizes DEQ to modify VPDES permits to promulgate amended water quality standards.

Permit Section Part II. Part II of the permit contains standard conditions that appear in all VPDES Permits. In general, these standard conditions address the responsibilities of the permittee, reporting requirements, testing procedures and records retention.

23. Changes to the Permit from the Previously Issued Permit:

a) Special Conditions:
   1) The Nutrient Reporting Special Condition was removed from the draft since these calculations are now incorporated into Part I.B. of the draft permit.
   2) The Nutrient Offset Special Condition has been updated in accordance with current guidance.
   3) A TMDL Reopener has been added to the permit.

b) Monitoring and Effluent Limitations:
   1) *E. coli* monitoring has been added to each flow tier since the facility was given an allocation in the approved Bacteria TMDL for the Upper Rappahannock Basin.
   2) All Total Nitrogen and Total Phosphorus Monthly, Year-to-Date, and Annual Loading reporting and limitations have been removed since they are now regulated through 9VAC25-820 *General Virginia Pollutant Discharge Elimination System (VPDES) Watershed Permit Regulation for Total Nitrogen and Total Phosphorus Discharges and Nutrient Trading in the Chesapeake Bay Watershed in Virginia.*
   3) Orthophosphate monitoring has been removed from the 0.075, 0.15, and 0.30 MGD flow tiers in accordance with the current agency guidance.
   4) Total Residual Chlorine monitoring has been increased from 1/Day to 3/Day at 4 hour intervals in accordance with current agency guidance.
   5) For the 0.075, 0.15, and 0.30 MGD flow tiers, the Total Residual Chlorine monthly average and weekly average limitations were changed to 0.007 mg/L and 0.008 mg/L respectively due to an increase in the frequency of monitoring from 1/Day to 3/Day.
   6) The Annual Average Total Nitrogen and Total Phosphorus concentrations were revised based on the annual loads assigned to the facility at 9VAC25-720 and 9VAC25-40.
   7) The monthly average loadings for CBOD and TSS at the 0.3 MGD tier were rounded to two significant figures in accordance with current agency guidance. The loadings changed from 11.4 kg/day to 11 kg/day.
   8) The composite period for the conventional parameters at the 0.075 MGD flow tier was changed from 4-hour to 8-hour. The Water Permit Manual recommends a 4-hour composite sample at the 0.075 MGD flow tier; 9VAC25-820 *General Virginia Pollutant Discharge Elimination System (VPDES) Watershed Permit Regulation for Total Nitrogen and Total Phosphorus Discharges and Nutrient Trading in the Chesapeake Bay Watershed in Virginia* requires an 8-hour composite. In order to simplify sample collection, all composites shall be 8-hour composites.

24. Variances/Alternate Limits or Conditions:

None

25. Public Notice Information:

First Public Notice Date: 6/30/11 Second Public Notice Date: 7/7/11

Public Notice Information is required by 9VAC25-31-280 B. All pertinent information is on file and may be inspected, and copied by contacting the: DEQ Northern Regional Office, 13901 Crown Court, Woodbridge, VA 22193, Telephone No. (703) 583-3834, Alison.Thompson@deq.virginia.gov. See Attachment 8 for a copy of the public notice document.

Persons may comment in writing or by email to the DEQ on the proposed permit action, and may request a public hearing, during the comment period. Comments shall include the name, address, and telephone number of the writer and of all persons represented by the commenter/requester, and shall contain a complete, concise statement of the factual basis for comments. Only those comments received within this period will be considered. The DEQ may decide to hold a public hearing, including another comment period, if public response is significant and there are substantial, disputed issues relevant to the permit. Requests for public hearings shall state 1) the reason why a hearing is requested; 2) a brief, informal statement regarding the nature and extent of the interest of the requester or of those represented by the requester, including how and to what extent such interest would be directly and adversely affected by the permit; and 3) specific references, where possible, to terms and conditions of the permit with suggested revisions. Following the comment period, the Board will make a determination regarding the proposed permit action. This determination

will become effective, unless the DEQ grants a public hearing. Due notice of any public hearing will be given. The public may request an electronic copy of the draft permit and fact sheet or review the draft permit and application at the DEQ Northern Regional Office by appointment.

26. 303 (d) Listed Stream Segments and Total Max. Daily Loads (TMDL):

A Bacteria TMDL for the Upper Rappahannock River Basin was approved by EPA on January 23, 2008. The TMDL did not specifically include the receiving stream (Hubbard Run), however, it did include all relevant upstream point source discharges. This facility was given a wasteload allocation of 5.22 E+11 cfu/year of *E. coli* bacteria.

TMDL Reopener: This special condition is to allow the permit to reopened if necessary to bring it in compliance with any applicable TMDL that may be developed and approved for the receiving stream.

27. Additional Comments:

Previous Board Action(s): None.

Staff Comments: Staff workload contributed to the delay in the reissuance of this permit.

Public Comment: DGIF requested coordination with DEQ as part of this reissuance. The coordination form was sent on April 13, 2011. DGIF responded on May 24, 2011:

> We have reviewed the above-referenced VPDES permit re-issuance. The receiving stream is Hubbard Run, an intermittent stream (all streamflow statistics = 0.0 MGD). According to the permit application, the effluent contains a total residual chlorine (TRC) weekly average of 0.010 mg/L and monthly average of 0.008 mg/L after dechlorination. The design flow is 0.025 million gallons per day (MGD).
>
> According to our records, Hubbard Run is an intermittent headwater tributary to a reach of the Rappahannock River that is a designated Threatened and Endangered (T&E) species water for the state Threatened (ST) green floater and potential anadromous fish use water.
>
> We recommend UV disinfection, rather than chlorination. Provided the project adheres to the effluent limitations and monitoring requirements specified in the permit, we do not anticipate the re-issuance of this existing permit to result in adverse impact to designated T&E species waters or their associated listed species.

EPA Checklist: The checklist can be found in Attachment 9.

MEMORANDUM

DEPARTMENT OF ENVIRONMENTAL QUALITY
Office of Water Quality Assessments
629 East Main Street P.O. Box 10009 Richmond, Virginia 23219

SUBJECT: Flow Frequency Determination
Utility Construction Management STP – #VA0068586

TO: Anna Tuthill, NRO

FROM: Paul E. Herman, P.E., WQAP

DATE: September 30, 1999

COPIES: Ron Gregory, Charles Martin, File

This memo supersedes my December 1, 1994, memo to April Young concerning the subject VPDES permit.

The Utility Construction Management STP discharges to the Hubbard Run near Remington, Virginia. Flow frequencies are required at this site for use by the permit writer in developing the VPDES permit.

The USGS conducted several flow measurements on the Tinpot Run from 1979 to 1980. The measurements were made at the U.S. Highway 15/29 (Business) bridge at Remington, VA. The measurements made by the USGS correlated very well with the same day daily mean values from the continuous record gage on the Hazel River at Rixeyville, VA (#01663500). The measurements and daily mean values were plotted on a logarithmic graph and a best fit line was drawn through the data points. The required flow frequencies from the reference gage were plotted on the regression line and the associated flow frequencies at the measurement site were determined from the graph. The flow frequencies at the discharge point were determined by using the values at the measurement site and adjusting them by proportional drainage areas. The data for the reference gage, the measurement site and the discharge point are presented below:

Hazel River at Rixeyville, VA (#01663500):

Drainage Area = 287 mi^2

1Q10 = 4.3 cfs
7Q10 = 5.9 cfs
30Q5 = 19 cfs

High Flow 1Q10 = 47 cfs
High Flow 7Q10 = 56 cfs
HM = 86 cfs

Tinpot Run at U.S. Route 15/29, at Remington, VA (#01664100):

Drainage Area = 9.70 mi^2

1Q10 = 0.0 cfs
7Q10 = 0.0 cfs
30Q5 = 0.0 cfs

High Flow 1Q10 = 0.001 cfs
High Flow 7Q10 = 0.002 cfs
HM = 0.0 cfs

Hubbard Run at discharge point:

Drainage Area = 0.483 mi^2

1Q10 = 0.0 cfs
7Q10 = 0.0 cfs
30Q5 = 0.0 cfs

High Flow 1Q10 = 0.0 cfs
High Flow 7Q10 = 0.0 cfs
HM = 0.0 cfs

For modeling purposes, the flow frequencies for the Hubbard Run at its mouth and the Rappahannock River are provided below. The Rappahannock River flow frequencies represent those for the gaging station located 2000 feet downstream of Hubbard Run.

Hubbard Run at mouth:

Drainage Area = 3.28 mi^2

1Q10 = 0.0 cfs
7Q10 = 0.0 cfs
30Q5 = 0.0 cfs

High Flow 1Q10 = 0.0 cfs
High Flow 7Q10 = 0.0 cfs
HM = 0.0 cfs

Rappahannock River at Remington, VA (#01664000):

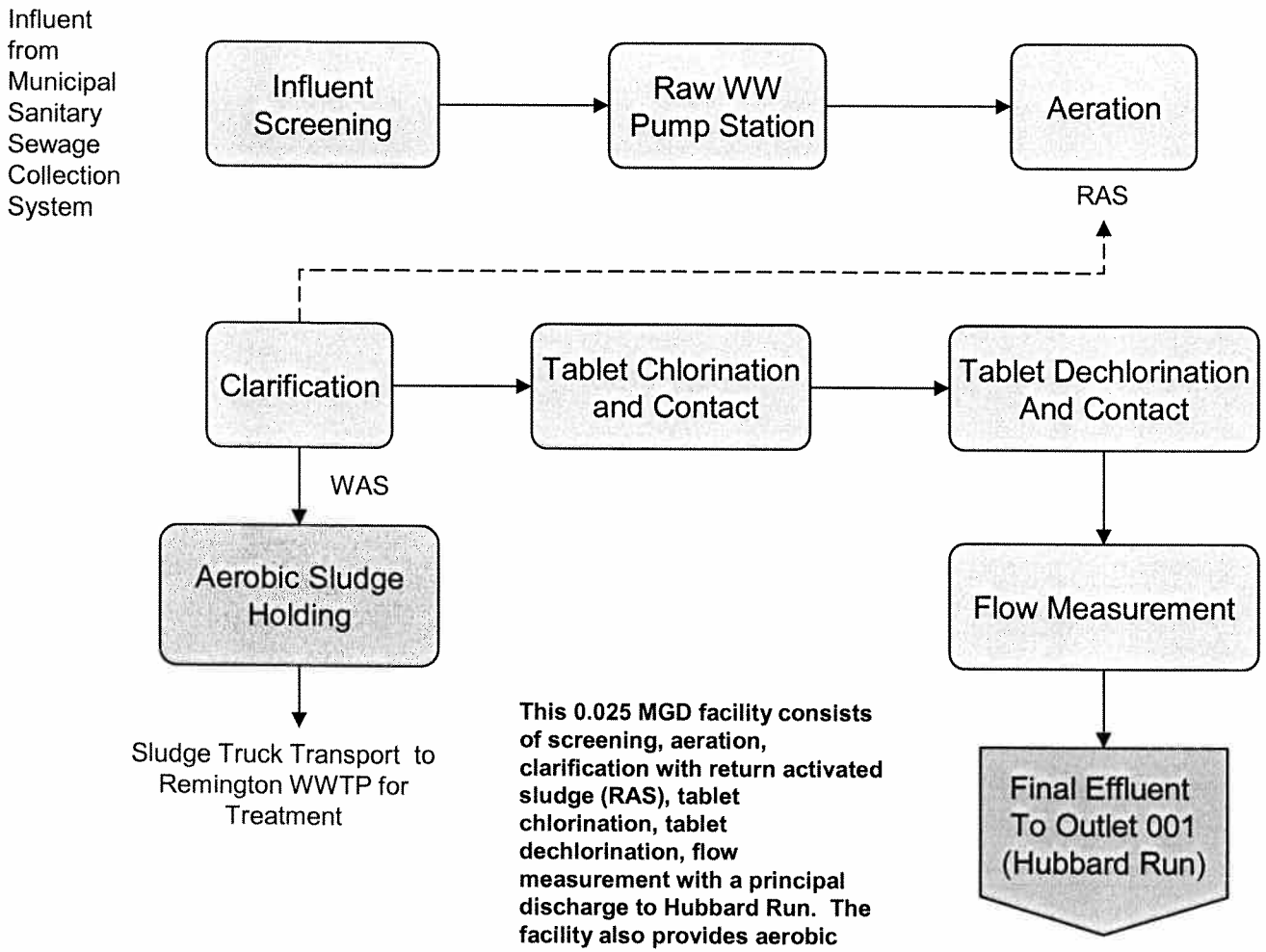
Drainage Area = 620 mi^2

1Q10 = 9.2 cfs
7Q10 = 11 cfs
30Q5 = 34 cfs

High Flow 1Q10 = 93 cfs
High Flow 7Q10 = 113 cfs
HM = 164 cfs

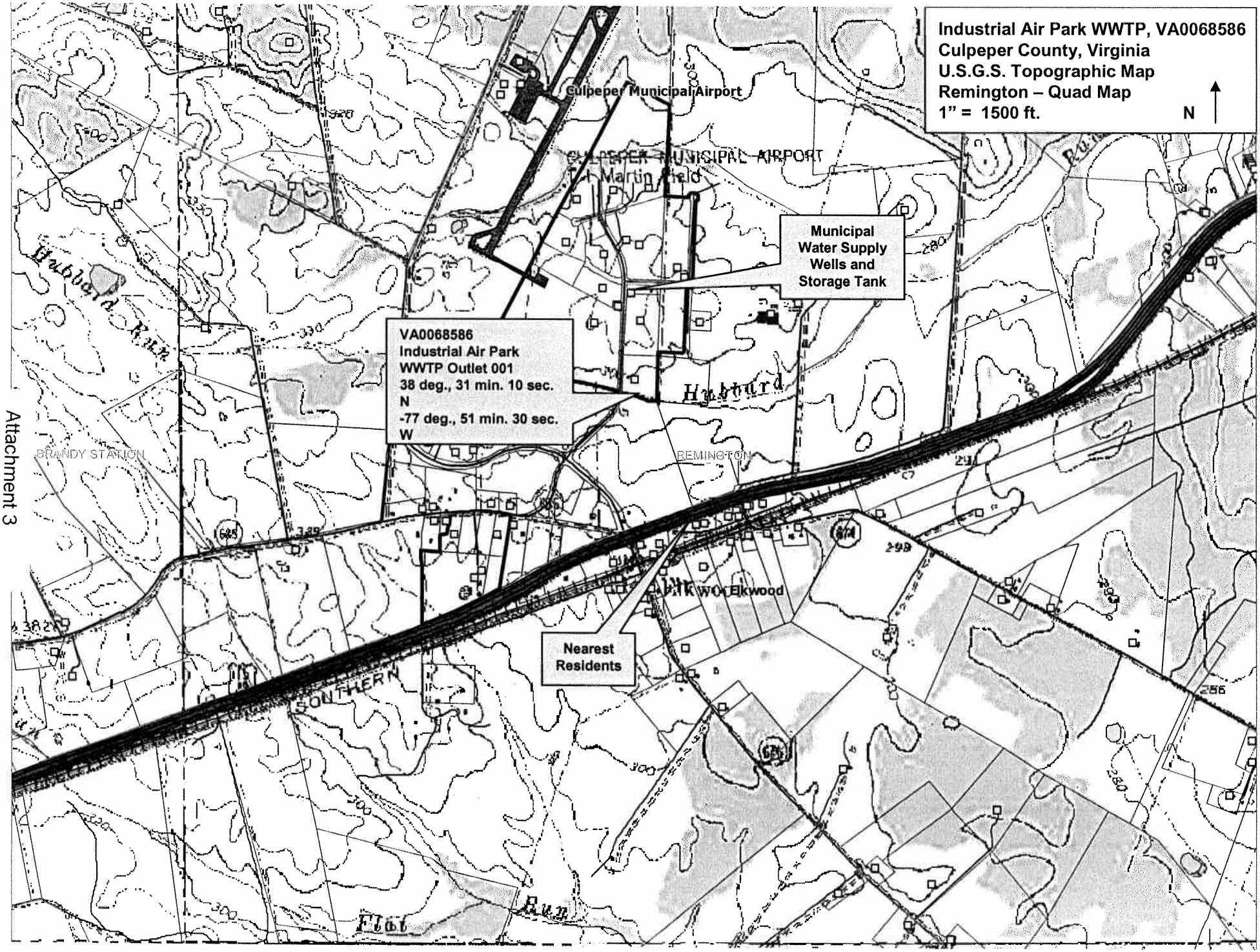
The high flow months are December through May. If you have any questions concerning this analysis, please let me know.

Culpeper County
Air Park Wastewater Treatment Facility
VA0068586 Process Flow Diagram



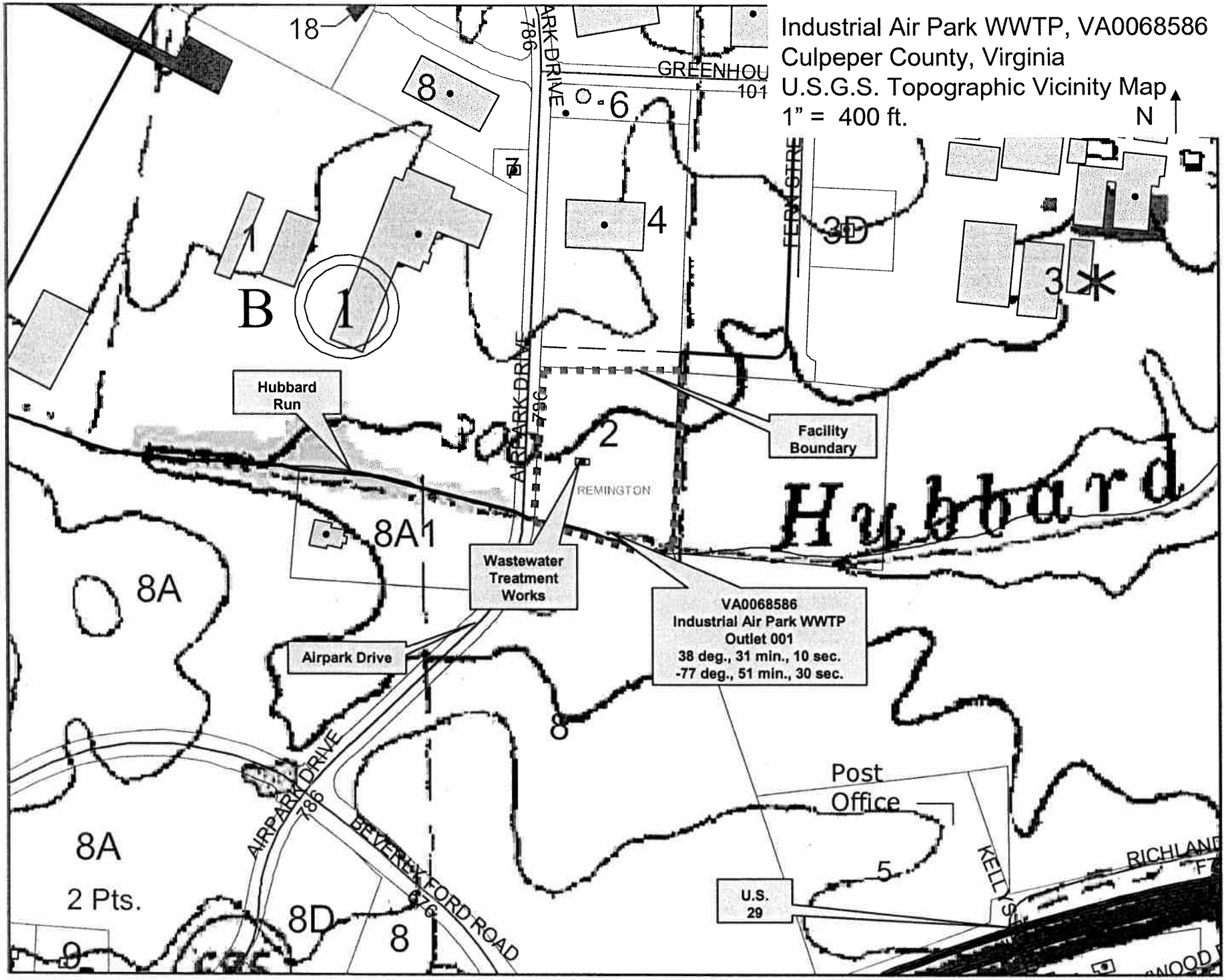
This 0.025 MGD facility consists of screening, aeration, clarification with return activated sludge (RAS), tablet chlorination, tablet dechlorination, flow measurement with a principal discharge to Hubbard Run. The facility also provides aerobic sludge holding prior to off site treatment at the Remington WWTP.

Attachment 2



Attachment 3

Industrial Air Park WWTP, VA0068586
Culpeper County, Virginia
U.S.G.S. Topographic Vicinity Map
1" = 400 ft.



December 1, 2006

Mr. Paul Howard, Jr.
Director of Environmental Services
306 Main St.
Culpeper, VA 22701

Re: Culpeper Industrial Airpark STP; VA0068586

Dear Mr. Howard:

Enclosed are copies of the facility technical and laboratory inspection reports generated from observations made while performing a Facility Technical Inspection at the Culpeper Industrial Airpark – Sewage Treatment Plant (STP) on November 2, 2006. The compliance/monitoring staff would like to thank Jonathon Weakley for his time and assistance during the inspection.

Summaries for both the technical and laboratory inspections are enclosed. The facility had Deficiencies for the laboratory inspection. Please note the requirements and recommendations addressed in the technical summary and submit in writing a progress report to this office by **January 3, 2006**, for the items addressed in the summary.

If you have any questions or comments concerning this report, please feel free to contact me at the Northern Virginia Regional Office at (703) 583-3882 or by E-mail at smmack@deq.virginia.gov.

Sincerely,

Sharon Mack
Environmental Specialist II

cc: Permits / DMR File
Compliance Manager
Compliance Auditor
Compliance Inspector
Steve Stell - OWCP
Jonathon Weakley – Culpeper County

DEQ
WASTEWATER FACILITY INSPECTION REPORT
PREFACE

VPDES/State Certification No.	(RE) Issuance Date	Amendment Date	Expiration Date
VA0068586	**October 27, 2005**		**October 26, 2010**

Facility Name	Address	Telephone Number
Culpeper Industrial Airpark STP	**13281 Airpark Dr Elkwood, VA 22718**	**none**
Owner Name	Address	Telephone Number
Culpeper County	**306 Main St. Culpeper, VA 22701**	**540-727-3409**
Responsible Official	Title	Telephone Number
Paul Howard, Jr.	**Director of Environmental Services**	**540-727-3409**
Responsible Operator	Operator Cert. Class/number	Telephone Number
Jonathon Weakley	**Class III; 1911004504**	**540-727-3409**

TYPE OF FACILITY:

DOMESTIC				**INDUSTRIAL**			
Federal		Major		Major		Primary	
Non-federal	**X**	Minor	**X**	Minor		Secondary	

INFLUENT CHARACTERISTICS:	DESIGN:
Flow	**0.025 MGD**
Population Served	**~ 400**
Connections Served	**11**

EFFLUENT LIMITS: Units in mg/L unless otherwise specified.

Parameter	Min.	Avg.	Max.	Parameter	Min.	Avg.	Max.
Flow MGD		**NL**		**pH s.u.**	**6.0**		**9.0**
DO	**6.0**			**Total Residual Chlorine - contact tank**	**1.0**		
Total Residual Chlorine - effluent		**.008**	**0.010**	**BOD**		**30**	**45**
TSS		**30**	**45**	**Ammonia (Nov -April)**		**3.1**	
Ammonia (May – Oct.)		**2.1**					

Receiving Stream	**Hubbard Run**
Basin	**Rappahannock River**
Discharge Point (LAT)	**38° 31' 10" N**
Discharge Point (LONG)	**77° 51' 30" W**

REV 5/00

DEQ
WATER FACILITY
INSPECTION REPORT
PART 1

Inspection date:	**November 2, 2006**	Date form completed:	**November 27, 2006**
Inspection by:	**Sharon Mack**	Inspection agency:	**DEQ NRO**
Time spent:	**30 hrs**	Announced:	**No**
Reviewed by:		Scheduled:	**Yes**
Present at inspection:	**Jonathon Weakley**		

TYPE OF FACILITY:

	Domestic	**Industrial**	
[ ] Federal	[ ] Major	[ ] Major	[ ] Primary
[**X**] Nonfederal	[**X**] Minor	[ ] Minor	[ ] Secondary

Type of inspection:

[**X**] Routine
[ ] Compliance/Assistance/Complaint
[ ] Reinspection

Date of last inspection: **None**
Agency: **None**

Population served: approx. **400 (pop equivalent)**

Connections served: **11**

Last month average: (Effluent) Month/year: **September 2006**

Flow:	**0.010**	**MGD**	pH:	**7.3**	**S.U.**	DO:	**6.7**	**mg/L**
TSS:	**8.4**	**mg/L**	BOD_5:	**21.0**	**mg/L**	Ammonia, May-Oct.	**<QL**	**mg/L**
CL_2, Total Contact	**0.9**	**mg/L**	CL_2, Inst. Res. Max	**<QL**	**mg/L**	CL_2, inst. Tech. Min. Limit	**0.9**	**mg/L**

Quarter average: (Effluent) **August, September, October 2006**

Flow:	**0.008**	**MGD**	pH:	**7.4**	**S.U.**	DO:	**6.3**	**mg/L**
TSS:	**11.6**	**mg/L**	BOD_5:	**15.0**	**mg/L**	Ammonia, May-Oct.	**<QL**	**mg/L**
CL_2, Total Contact	**0.96**	**mg/L**	CL_2, Inst. Res. Max	**<QL**	**mg/L**	CL_2, inst. Tech. Min. Limit	**0.96**	**mg/L**

DATA VERIFIED IN PREFACE	[**X**] Updated	[ ] No changes	
Has there been any new construction?	[**X**] Yes	[ ] No	
If yes, were plans and specifications approved?	[**X**] Yes	[ ] No	[ ] NA

DEQ approval date: **Dechlorination tablet feeder & pump stations – 1990**
EQ (surge) basins and grinder pumps – October 2000

(A) PLANT OPERATION AND MAINTENANCE

1. Class and number of licensed operators: I **1** II __ III **2** IV __ Trainee **1**
2. Hours per day plant is manned: **1-3 hours per day**
3. Describe adequacy of staffing. [ ] Good [**X**] Average [ ] Poor
4. Does the plant have an established program for training personnel? [**X**] Yes [ ] No
5. Describe the adequacy of the training program. [**X**] Good [ ] Average [ ] Poor
6. Are preventive maintenance tasks scheduled? [**X**]Yes [ ] No
7. Describe the adequacy of maintenance. [**X**] Good [ ] Average [ ] Poor*
8. Does the plant experience any organic/hydraulic overloading?
   If yes, identify cause and impact on plant: [**X**] Yes [ ] No
9. Any bypassing since last inspection? [ ] Yes [**X**] No
10. Is the standby electric generator operational? [**X**] Yes [ ] No* [ ] NA
11. Is the STP alarm system operational? [**X**] Yes [ ] No* [ ] NA
12. How often is the standby generator exercised? **Once monthly under load**
    Power Transfer Switch? **Once monthly**
    Alarm System? **Regularly – goes off whenever plant has high flows such as from rainstorms.**
13. When was the cross connection control device last tested on the potable water service? **August 23, 2006**
14. Is sludge being disposed in accordance with the approved sludge disposal plan? [ ] Yes [ ] No [**X**] NA
15. Is septage received by the facility? [ ] Yes [**X**] No
    Is septage loading controlled? [ ] Yes [**X**] No
    Are records maintained? [ ] Yes [**X**] No
16. Overall appearance of facility: [**X**] Good [ ] Average [ ] Poor

Comments:

1. **Operators visit the county wastewater collection and treatment systems on a rotating schedule.**

8. **Inflow & Infiltration (I & I) issues results in high flows during rain events. The operator has not seen solids carryover, and these events do not appear to have a significant effect on plant performance.**

14. **Sludge is hauled from sludge holding tank to Remington Wastewater Treatment Plant or to the Town of Culpeper Wastewater Treatment Plant.**

(B) PLANT RECORDS

1. Which of the following records does the plant maintain?

Operational Logs for each unit process	[**X**] Yes	[ ] No	[ ] NA
Instrument maintenance and calibration	[**X**] Yes	[ ] No	[ ] NA
Mechanical equipment maintenance	[**X**] Yes	[ ] No	[ ] NA
Industrial waste contribution (Municipal Facilities)	[ ] Yes	[ ] No	[**X**] NA

2. What does the operational log contain?

[**X**] Visual observations	[**X**] Flow measurement
[**X**] Laboratory results	[**X**] Process adjustments
[**X**] Control calculations	[ ] Other (specify)

Comments:

3. What do the mechanical equipment records contain?

[**X**] As built plans and specs	[ ] Spare parts inventory
[**X**] Manufacturers instructions	[**X**] Equipment/parts suppliers
[**X**] Lubrication schedules	[ ] Other (specify)

Comments:

4. What do the industrial waste contribution records contain? (Municipal Only) **NA**

[ ] Waste characteristics	[ ] Locations and discharge types
[ ] Impact on plant	[ ] Other (specify)

Comments:

5. Which of the following records are kept at the plant and available to personnel?

[**X**] Equipment maintenance records	[**X**] Operational Log
[ ] Industrial contributor records	[**X**] Instrumentation records
[**X**] Sampling and testing records	

6. Records not normally available to plant personnel and their location: **None**

7. Were the records reviewed during the inspection? [**X**] Yes [ ] No

8. Are the records adequate and the O & M Manual current? [ ] Yes [ ] No **See comments**

9. Are the records maintained for the required 3-year time period? [**X**] Yes [ ] No

Comments:

8. The O&M Manual is currently at the county engineer's office for review to assure that it is still current. The most recent updated copy on file at VA DEQ was received June 1990.

(C) SAMPLING

1. Do sampling locations appear to be capable of providing representative samples? [**X**] Yes [ ] No*
2. Do sample types correspond to those required by the VPDES permit? [**X**] Yes [ ] No*
3. Do sampling frequencies correspond to those required by the VPDES permit? [**X**] Yes [ ] No*
4. Are composite samples collected in proportion to flow? [ ] Yes [ ] No* [**X**] NA
5. Are composite samples refrigerated during collection? [ ] Yes [ ] No* [**X**] NA
6. Does plant maintain required records of sampling? [**X**] Yes [ ] No*
7. Does plant run operational control tests? [**X**] Yes [ ] No

Comments:

(D) TESTING

1. Who performs the testing? [**X**] Plant **DO, pH, CL2** [ ] Central Lab [**X**] Commercial Lab **Hardness, TKN, BOD, TSS, Ammonia**

Name: **ESS - Culpeper, VA**

If plant performs any testing, complete 2-4.

2. What method is used for chlorine analysis? **Hach pocket colorimeter II**
3. Does plant appear to have sufficient equipment to perform required tests? [**X**] Yes [ ] No*
4. Does testing equipment appear to be clean and/or operable? [**X**] Yes [ ] No*

Comments:

(E) FOR INDUSTRIAL FACILITIES WITH TECHNOLOGY BASED LIMITS ONLY

1. Is the production process as described in the permit application? (If no, describe changes in comments)
   [ ] Yes [ ] No [**X**] NA
2. Do products and production rates correspond as provided in the permit application? (If no, list differences)
   [ ] Yes [ ] No [**X**] NA
3. Has the State been notified of the changes and their impact on plant effluent? Date:
   [ ] Yes [ ] No* [**X**] NA

Comments:

Technical Summary

Comments:

- **The grounds are well maintained and the plant appears in good operating condition.**
- **The plant does have issues with Inflow and Infiltration. Some of the collection lines have been TV-ed, and the main problem spots appear to be at the manhole connections. The county plans to line these areas over the next two fiscal years.**
- **The plant no longer has a flow meter – effluent flow is estimated via a bucket test.**

Recommendations for action:

- **The Operations &Maintenance manual on file at DEQ's Northern Regional Office is dated as approved in March 1986, with an addendum to cover the dechlorination tablet feeder and pump stations received in June 1990. Culpeper County's Engineer is reviewing the O&M; if it is updated, please send a copy to the Northern Regional Office for our review and files.**
- **Pin flock in the clarifier is a regular occurrence. While total suspended solids levels in the effluent are within permit limits, they do tend to be high. DEQ recommends more consistent process control testing (pH, MLSS, MCRT) to assure that the plant is operating at maximum efficiency.**

UNIT PROCESS: Flow Equalization

1. Type: [ ] In-line [X] Side-line [ ] Spill pond — Number of cells: **2**

2. What unit process does it precede? **Aeration basin**

3. Is volume adequate? [X] Yes [ ] No

4. Mixing: [ ] None [X] Diffused air [ ] Fixed mechanical [ ] Floating mechanical

5. Condition of mixing equipment: [X] Good [ ] Average [ ] Poor

6. How drawn off?
   A. Pumped from: [ ] Surface [X] Sub-surface [ ] Adjustable
   B. Weir [ ] Surface [ ] Sub-surface

7. Is containment structure in good condition? [X] Yes [ ] No

8. Are the facilities to flush solids and grease from basin walls adequate? [X] Yes [ ] No [ ] NA

9. Are there facilities for withdrawing floating material and foam? [ ] Yes [X] No

10. How are solids removed? [ ] Drain down [ ] Drag line [ ] NA [X] Other

    Is it adequate? [X] Yes [ ] No

11. Is the emergency overflow in good condition? [ ] Yes [ ] No [X] NA

12. Are the depth gauges in good condition? [X] Yes [ ] No [ ] NA

Comments:

1. The facility has two aerated EQ tanks, each 24 ft deep. Wastewater is pumped from each tank via a grinder pump. The lines from the EQ tanks join and one line continues to plant and discharges water into the aeration basin.

10. If needed, grit can be removed via septage pumping truck.

UNIT PROCESS: Activated Sludge Aeration

1. Number of units: **1** In operation: **1**

2. Mode of operation: **Extended aeration**

3. Proper flow distribution between units: [ ] Yes [ ] No* [**X**] NA

4. Foam control operational: [ ] Yes [ ] No* [**X**] NA

5. Scum control operational: [ ] Yes [ ] No* [**X**] NA

6. Evidence of following problems:
   a. dead spots [ ] Yes* [**X**] No
   b. excessive foam [ ] Yes* [**X**] No
   c. poor aeration [ ] Yes* [**X**] No
   d. excessive aeration [ ] Yes* [**X**] No
   e. excessive scum [ ] Yes* [**X**] No
   f. aeration equipment malfunction [ ] Yes* [**X**] No
   g. other (identify in comments) [ ] Yes* [**X**] No

7. Mixed liquor characteristics (as available):

   DO: **1.1 – 6.0 mg/L**
   Color: **Chocolate brown**
   Odor: **None**
   Settleability: **270 - 300 ml/L**

8. Return/waste sludge:
   a. Return Rate: **Not metered**
   b. Waste Rate: **~ 400 gallons at a time**
   c. Frequency of Wasting: **Every Monday**

9. Aeration system control: [ ] Time Clock [ ] Manual [**X**] Continuous [ ] Other (explain)

10. Effluent control devices working properly (oxidation ditches): [ ] Yes [ ] No* [**X**] NA

11. General condition: [**X**] Good [ ] Fair [ ] Poor

Comments:

2. The facility has two blowers to supply diffused air to the aeration basin. Blowers operate as one on/one off, and are rotated once weekly. These units also supply air to the EQ basins and the post aeration pipe.

8a. Sludge is returned from the clarifier via air lift pump to a RAS/WAS trough. RAS/WAS is controlled by moving a sliding gate to direct sludge into either the aeration basin or into the sludge holding tank.

UNIT PROCESS: Sedimentation

[ ] Primary [**X**] Secondary [ ] Tertiary

1.	Number of units: **1**	In operation: **1**		
2.	Proper flow distribution between units:	[ ] Yes	[ ] No*	[**X**] NA
3.	Signs of short circuiting and/or overloads:	[ ] Yes	[**X**] No	
4.	Effluent weirs level:	[**X**] Yes	[ ] No*	
	Clean:	[**X**] Yes	[ ] No*	
5.	Scum collection system working properly:	[**X**] Yes	[ ] No*	[ ] NA
6.	Sludge collection system working properly:	[**X**] Yes	[ ] No*	
7.	Influent, effluent baffle systems working properly:	[**X**] Yes	[ ] No*	
8.	Chemical addition:	[**X**] Yes	[ ] No	
	Chemicals: **Alum added occasionally**			
9.	Effluent characteristics: **Clear, no visible solids and no odor**			
10.	General condition:	[**X**] Good	[ ] Fair	[ ] Poor

Comments:

5. The skimmer ties in to RAS/WAS line; sludge returned via air lift pumps.

9. Pin flock was distributed throughout water column in the clarifier. While flock was observed entering the skimmer, clarifier effluent in the effluent weir appeared much clearer.

UNIT PROCESS: Chlorination

1	No. of chlorinators:	**0**	In operation:	**0**
2.	No. of evaporators:	**0**	In operation:	**0**
3.	No. of chlorine contact tanks:	**1**	In operation:	**1**

4. Proper flow distribution between units: [ ] Yes [ ] No* [**X**] NA

5. How is chlorine introduced into the wastewater?
   [ ] Perforated diffusers
   [ ] Injector with single entry point
   [**X**] Other **2 Tablet feeders**

6. Chlorine residual in basin effluent: **>2.20 mg/L analyzed at 1200 by SM, 2.24 mg/L when diluted 50/50 and analyzed at 1213 by SM.**

7. Applied chlorine dosage: **unknown - feeder tubes are topped off daily.**

8. Contact basins adequately baffled: [**X**] Yes [ ] No*

9. Adequate ventilation:
   a. cylinder storage area [ ] Yes [ ] No* [**X**] NA
   b. equipment room [ ] Yes [ ] No* [**X**] NA

10. Proper safety precautions used: [**X**] Yes [ ] No*

11. General condition: [**X**] Good [ ] Fair [ ] Poor

Comments:

- **Clarifier effluent passes through one tablet feeder, enters a trough, then into the 2nd tablet feeder, then goes under the trough into the baffled contact basin.**

UNIT PROCESS: Post Aeration

1.	Number of units:	**1**	In operation:	**1**	
2.	Proper flow distribution between units:	[ ] Yes	[ ] No*	[**X**] NA	
3.	Evidence of following problems:				
	a. dead spots	[ ] Yes*	[**X**] No		
	b. excessive foam	[ ] Yes*	[**X**] No		
	c. poor aeration	[ ] Yes*	[**X**] No		
	d. mechanical equipment failure	[ ] Yes*	[**X**] No	[ ] NA	
4.	How is the aerator controlled?	[ ] Time clock	[ ] Manual	[**X**] Continuous	[ ] Other* [ ] NA
5.	What is the current operating schedule?	**Continuous**			
6.	Step weirs level:	[ ] Yes	[ ] No	[**X**] NA	
7.	Effluent D.O. level:	**8.60 mg/L measured at 1220 by S. Mack**			
8.	General condition:	[**X**] Good	[ ] Fair	[ ] Poor	

Comments:

5. Operate on same blower as the aeration basins.

UNIT PROCESS: Dechlorination

1. Chemical used: [ ] Sulfur Dioxide [**X**] Bisulfite [ ] Other
2. No. of sulfonators: **0** In operation: **0**
3. No. of evaporators: **0** In operation: **0**
4. No. of chemical feeders: **0** In operation: **0**
5. No. of contact tanks: **1** In operation: **1**
6. Proper flow distribution between units: [ ] Yes [ ] No* [**X**] NA
7. How is chemical introduced into the wastewater?
   [ ] Perforated diffusers
   [ ] Injector with single entry point
   [**X**] Other **Tablet feeder**
8. Control system operational: [ ] Yes [ ] No* [**X**] NA
   a. residual analyzers: [ ] Yes [**X**] No*
   b. system adjusted: [ ] Automatic [**X**] Manual [ ] Other:
9. Applied dechlorination dose: **unknown - feeder tubes are topped off daily.**
10. Chlorine residual in basin effluent: **See comments**
11. Contact basins adequately baffled: [**X**] Yes [ ] No* [ ] NA
12. Adequate ventilation:
    a. cylinder storage area: [ ] Yes [ ] No* [**X**] NA
    b. equipment room: [ ] Yes [ ] No* [**X**] NA
13. Proper safety precautions used: [**X**] Yes [ ] No*
14. General condition: [**X**] Good [ ] Fair [ ] Poor

Comments:

10. The regular compliance sample analyzed by J. Weakley 0950 for total residual chlorine on this day read 0.01 mg/L (< QL) for the final effluent, 1.71 for contact basin. The first time the final effluent was analyzed by S. Mack at 1206, the total residual chlorine for the final effluent was 1.20 mg/L. We re-sampled the final effluent and ran side-by-side analyses at 1230. Both analyses resulted in total chlorine readings of < QL.

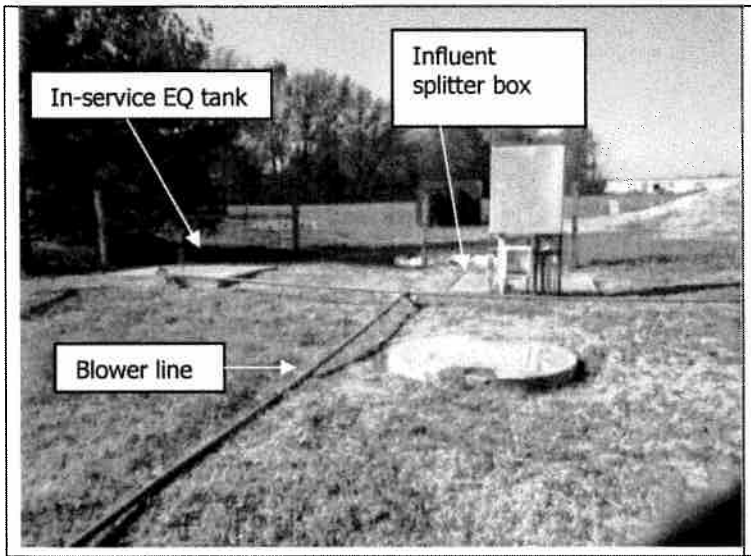
14. There is some subsidence under the dechlorination chamber – possibly an animal burrow.

UNIT PROCESS: Effluent/Plant Outfall

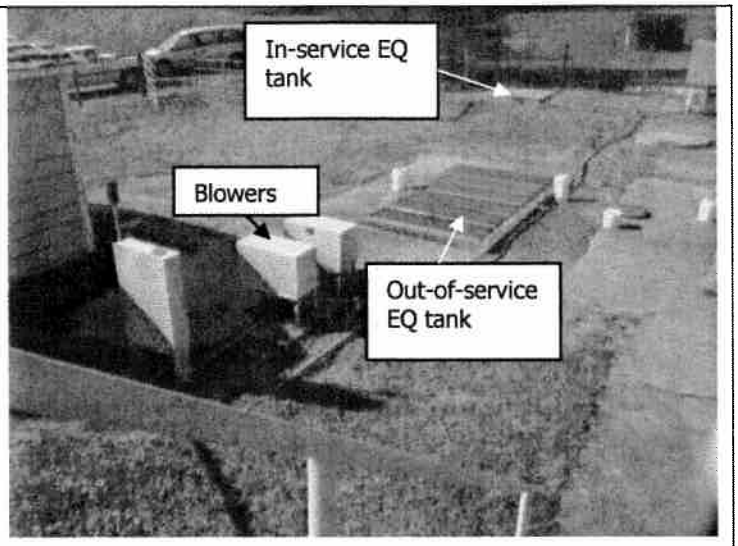
1. Type Outfall [**X**] Shore based [ ] Submerged
2. Type if shore based: [ ] Wingwall [ ] Headwall [ ] Rip Rap [**X**] NA
3. Flapper valve: [ ] Yes [**X**] No [ ] NA
4. Erosion of bank: [ ] Yes [**X**] No [ ] NA
5. Effluent plume visible? [ ] Yes* [**X**] No
6. Condition of outfall and supporting structures: [**X**] Good [ ] Fair [ ] Poor*
7. Final effluent, evidence of following problems:
   a. oil sheen [ ] Yes* [**X**] No
   b. grease [ ] Yes* [**X**] No
   c. sludge bar [ ] Yes* [**X**] No
   d. turbid effluent [ ] Yes* [**X**] No
   e. visible foam [ ] Yes* [**X**] No
   f. unusual color [ ] Yes* [**X**] No

Comments:

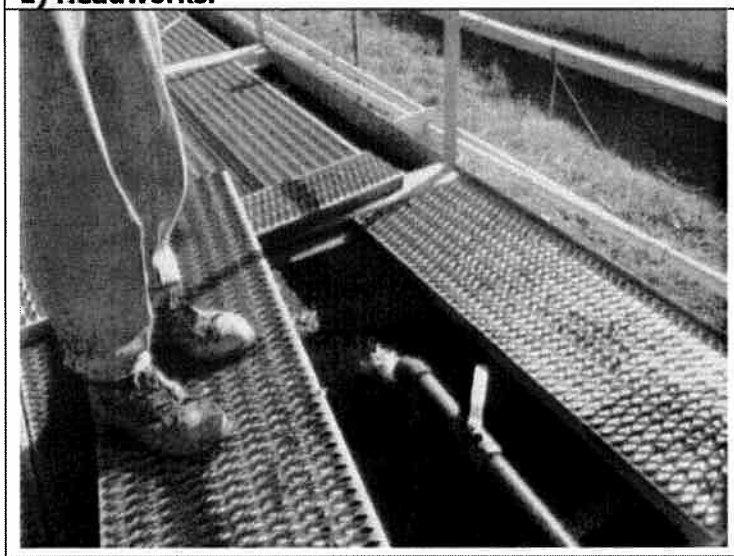
2. The discharge pipe extends out over the stream.



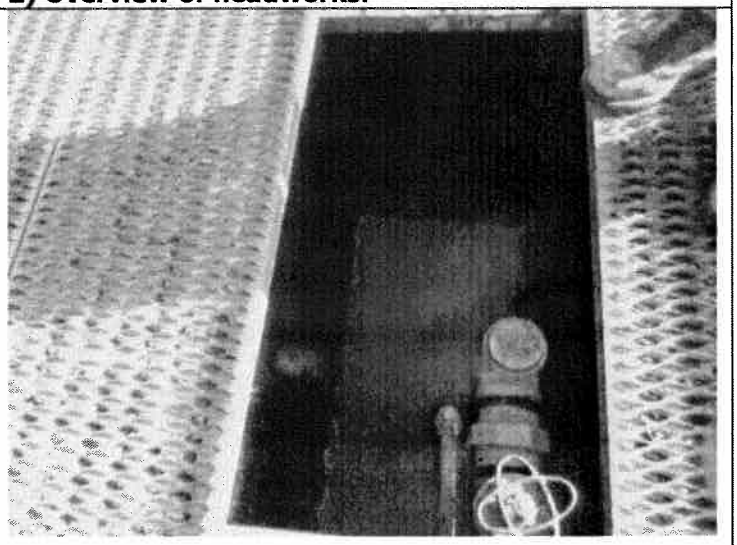
1) Headworks.



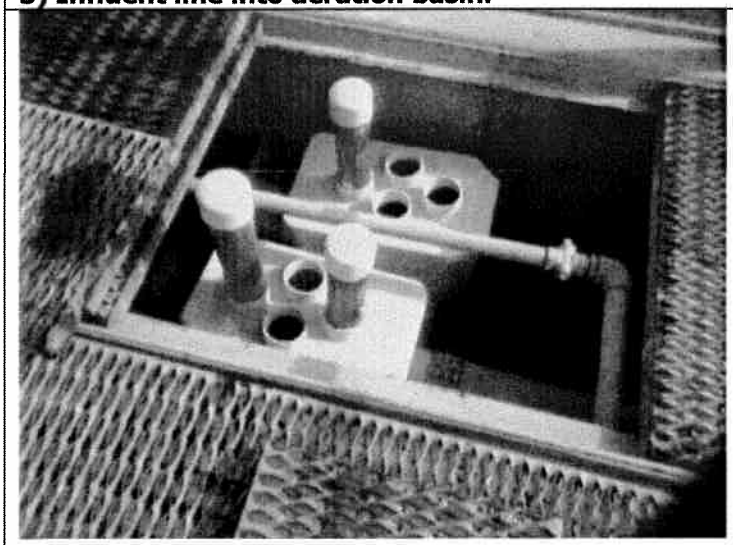
2) Overview of headworks.



3) Influent line into aeration basin.

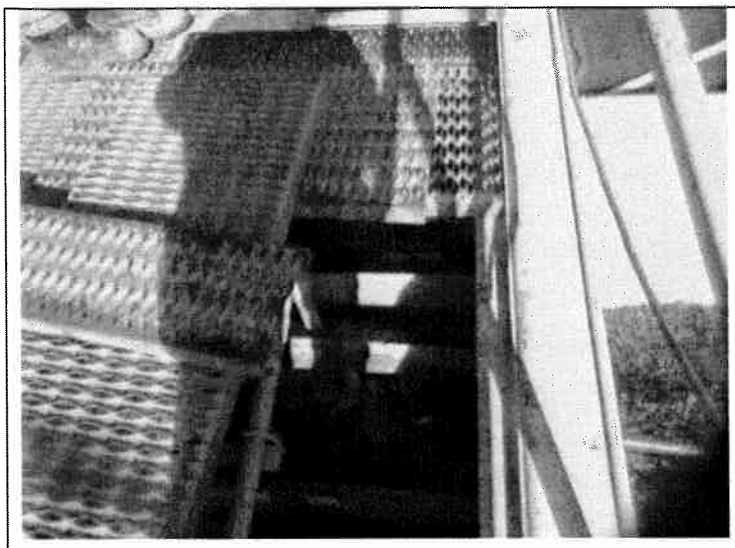


4) Clarifier.

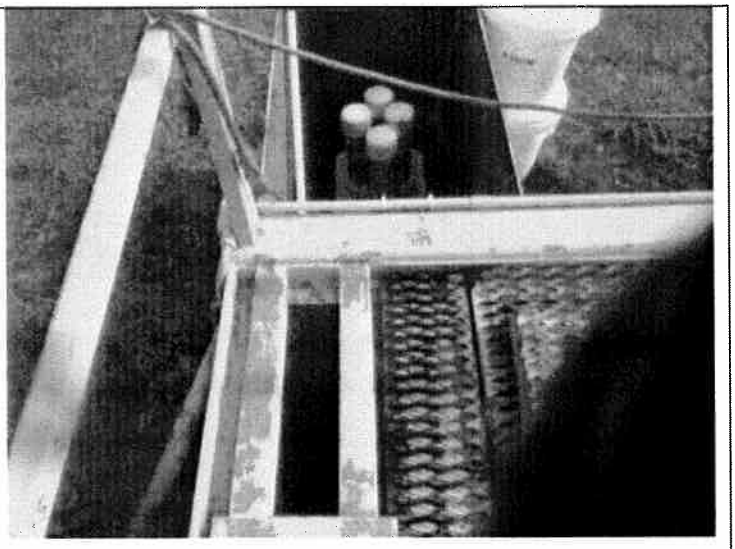


5) Chlorine tablet feeders

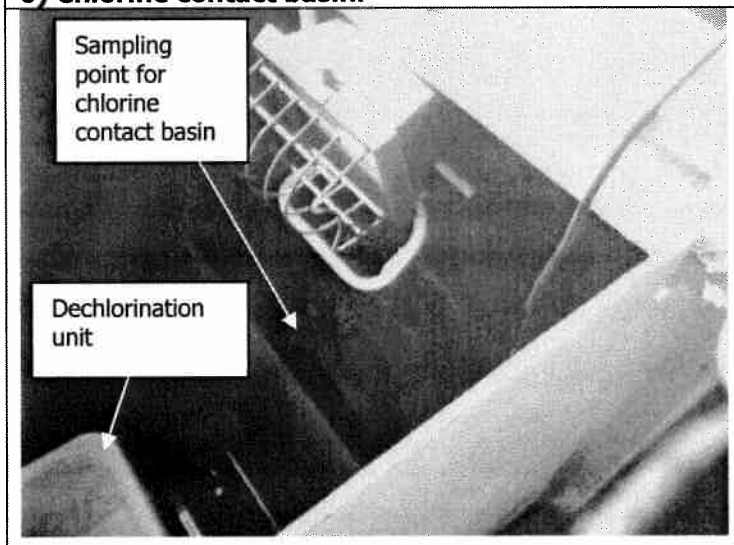
Facility name: Culpeper Industrial Air Park STP
VPDES Permit No. VA0068586
Site Inspection Date: November 2, 2006
Photos & Layout by: Sharon Mack



6) Chlorine contact basin.

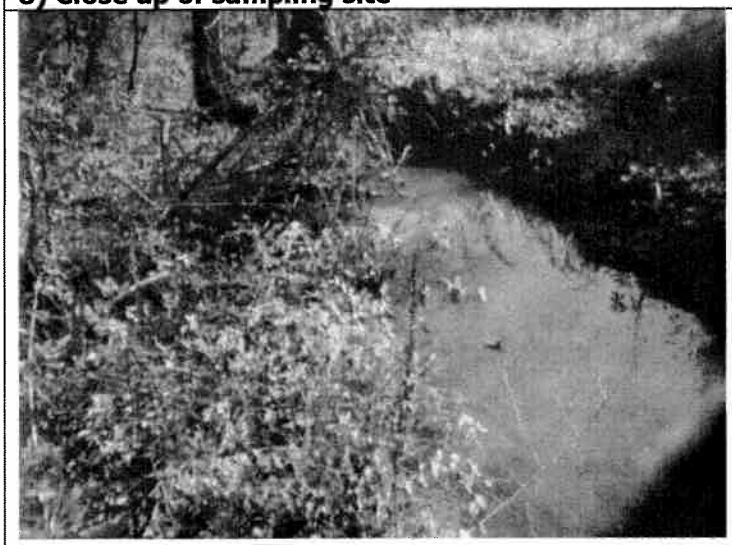


7) Dechlorination tablet feeder.



8) Close up of sampling site

9) Outfall 001.



10) Hubbard Run downstream of outfall.

Facility name: Culpeper Industrial Air Park STP
VPDES Permit No. VA0068586
Site Inspection Date: November 2, 2006
Photos & Layout by: Sharon Mack

FRESHWATER
WATER QUALITY CRITERIA / WASTELOAD ALLOCATION ANALYSIS

Facility Name: Culpeper County Industrial Air Park WWTP Permit No.: VA0068586

Receiving Stream: Hubbard Run Version: OWP Guidance Memo 00-2011 (8/24/00)

Stream Information

Mean Hardness (as CaCO3) =		mg/L
90% Temperature (Annual) =		deg C
90% Temperature (Wet season) =		deg C
90% Maximum pH =		SU
10% Maximum pH =		SU
Tier Designation (1 or 2) =	1	
Public Water Supply (PWS) Y/N? =	n	
Trout Present Y/N? =	n	
Early Life Stages Present Y/N? =	y	

Stream Flows

1Q10 (Annual) =	0	MGD
7Q10 (Annual) =	0	MGD
30Q10 (Annual) =	0	MGD
1Q10 (Wet season) =	0	MGD
30Q10 (Wet season)	0	MGD
30Q5 =	0	MGD
Harmonic Mean =	0	MGD

Mixing Information

Annual - 1Q10 Mix =	100	%
- 7Q10 Mix =	100	%
- 30Q10 Mix =	100	%
Wet Season - 1Q10 Mix =	100	%
- 30Q10 Mix =	100	%

Effluent Information

Mean Hardness (as CaCO3) =	50	mg/L
90% Temp (Annual) =	22.09	deg C
90% Temp (Wet season) =	15	deg C
90% Maximum pH =	7.9	SU
10% Maximum pH =		SU
Discharge Flow =	0.3	MGD

Parameter	Background	Water Quality Criteria				Wasteload Allocations				Antidegradation Baseline				Antidegradation Allocations				**Most Limiting Allocations**			
(ug/l unless noted)	Conc.	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	**Acute**	**Chronic**	**HH (PWS)**	**HH**
Acenapthene	0	--	--	na	9.9E+02	--	--	na	9.9E+02	--	--	--	--	--	--	--	--	--	--	na	9.9E+02
Acrolein	0	--	--	na	9.3E+00	--	--	na	9.3E+00	--	--	--	--	--	--	--	--	--	--	na	9.3E+00
Acrylonitrile[C]	0	--	--	na	2.5E+00	--	--	na	2.5E+00	--	--	--	--	--	--	--	--	--	--	na	2.5E+00
Aldrin [C]	0	3.0E+00	--	na	5.0E-04	3.0E+00	--	na	5.0E-04	--	--	--	--	--	--	--	--	3.0E+00	--	na	5.0E-04
Ammonia-N (mg/l) (Yearly)	0	1.01E+01	1.72E+00	na	--	1.0E+01	1.7E+00	na	--	--	--	--	--	--	--	--	--	1.0E+01	1.7E+00	na	--
Ammonia-N (mg/l) (High Flow)	0	1.01E+01	2.71E+00	na	--	1.0E+01	2.7E+00	na	--	--	--	--	--	--	--	--	--	1.0E+01	2.7E+00	na	--
Anthracene	0	--	--	na	4.0E+04	--	--	na	4.0E+04	--	--	--	--	--	--	--	--	--	--	na	4.0E+04
Antimony	0	--	--	na	6.4E+02	--	--	na	6.4E+02	--	--	--	--	--	--	--	--	--	--	na	6.4E+02
Arsenic	0	3.4E+02	1.5E+02	na	--	3.4E+02	1.5E+02	na	--	--	--	--	--	--	--	--	--	3.4E+02	1.5E+02	na	--
Barium	0	--	--	na	--	--	--	na	--	--	--	--	--	--	--	--	--	--	--	na	--
Benzene [C]	0	--	--	na	5.1E+02	--	--	na	5.1E+02	--	--	--	--	--	--	--	--	--	--	na	5.1E+02
Benzidine[C]	0	--	--	na	2.0E-03	--	--	na	2.0E-03	--	--	--	--	--	--	--	--	--	--	na	2.0E-03
Benzo (a) anthracene [C]	0	--	--	na	1.8E-01	--	--	na	1.8E-01	--	--	--	--	--	--	--	--	--	--	na	1.8E-01
Benzo (b) fluoranthene [C]	0	--	--	na	1.8E-01	--	--	na	1.8E-01	--	--	--	--	--	--	--	--	--	--	na	1.8E-01
Benzo (k) fluoranthene [C]	0	--	--	na	1.8E-01	--	--	na	1.8E-01	--	--	--	--	--	--	--	--	--	--	na	1.8E-01
Benzo (a) pyrene [C]	0	--	--	na	1.8E-01	--	--	na	1.8E-01	--	--	--	--	--	--	--	--	--	--	na	1.8E-01
Bis2-Chloroethyl Ether [C]	0	--	--	na	5.3E+00	--	--	na	5.3E+00	--	--	--	--	--	--	--	--	--	--	na	5.3E+00
Bis2-Chloroisopropyl Ether	0	--	--	na	6.5E+04	--	--	na	6.5E+04	--	--	--	--	--	--	--	--	--	--	na	6.5E+04
Bis 2-Ethylhexyl Phthalate [C]	0	--	--	na	2.2E+01	--	--	na	2.2E+01	--	--	--	--	--	--	--	--	--	--	na	2.2E+01
Bromoform [C]	0	--	--	na	1.4E+03	--	--	na	1.4E+03	--	--	--	--	--	--	--	--	--	--	na	1.4E+03
Butylbenzylphthalate	0	--	--	na	1.9E+03	--	--	na	1.9E+03	--	--	--	--	--	--	--	--	--	--	na	1.9E+03
Cadmium	0	1.8E+00	6.6E-01	na	--	1.8E+00	6.6E-01	na	--	--	--	--	--	--	--	--	--	1.8E+00	6.6E-01	na	--
Carbon Tetrachloride [C]	0	--	--	na	1.6E+01	--	--	na	1.6E+01	--	--	--	--	--	--	--	--	--	--	na	1.6E+01
Chlordane [C]	0	2.4E+00	4.3E-03	na	8.1E-03	2.4E+00	4.3E-03	na	8.1E-03	--	--	--	--	--	--	--	--	2.4E+00	4.3E-03	na	8.1E-03
Chloride	0	8.6E+05	2.3E+05	na	--	8.6E+05	2.3E+05	na	--	--	--	--	--	--	--	--	--	8.6E+05	2.3E+05	na	--
TRC	0	1.9E+01	1.1E+01	na	--	1.9E+01	1.1E+01	na	--	--	--	--	--	--	--	--	--	1.9E+01	1.1E+01	na	--
Chlorobenzene	0	--	--	na	1.6E+03	--	--	na	1.6E+03	--	--	--	--	--	--	--	--	--	--	na	1.6E+03

Attachment 5

Parameter	Background	Water Quality Criteria				Wasteload Allocations				Antidegradation Baseline				Antidegradation Allocations				Most Limiting Allocations			
(ug/l unless noted)	Conc.	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH
Chlorodibromomethane[C]	0	--	--	na	1.3E+02	--	--	na	1.3E+02	--	--	--	--	--	--	--	--	--	--	na	1.3E+02
Chloroform	0	--	--	na	1.1E+04	--	--	na	1.1E+04	--	--	--	--	--	--	--	--	--	--	na	1.1E+04
2-Chloronaphthalene	0	--	--	na	1.6E+03	--	--	na	1.6E+03	--	--	--	--	--	--	--	--	--	--	na	1.6E+03
2-Chlorophenol	0	--	--	na	1.5E+02	--	--	na	1.5E+02	--	--	--	--	--	--	--	--	--	--	na	1.5E+02
Chlorpyrifos	0	8.3E-02	4.1E-02	na	--	8.3E-02	4.1E-02	na	--	--	--	--	--	--	--	--	--	8.3E-02	4.1E-02	na	--
Chromium III	0	3.2E+02	4.2E+01	na	--	3.2E+02	4.2E+01	na	--	--	--	--	--	--	--	--	--	3.2E+02	4.2E+01	na	--
Chromium VI	0	1.6E+01	1.1E+01	na	--	1.6E+01	1.1E+01	na	--	--	--	--	--	--	--	--	--	1.6E+01	1.1E+01	na	--
Chromium, Total	0	--	--	1.0E+02	--	--	--	na	--	--	--	--	--	--	--	--	--	--	--	na	--
Chrysene[C]	0	--	--	na	1.8E-02	--	--	na	1.8E-02	--	--	--	--	--	--	--	--	--	--	na	1.8E-02
Copper	0	7.0E+00	5.0E+00	na	--	7.0E+00	5.0E+00	na	--	--	--	--	--	--	--	--	--	7.0E+00	5.0E+00	na	--
Cyanide, Free	0	2.2E+01	5.2E+00	na	1.6E+04	2.2E+01	5.2E+00	na	1.6E+04	--	--	--	--	--	--	--	--	2.2E+01	5.2E+00	na	1.6E+04
DDD[C]	0	--	--	na	3.1E-03	--	--	na	3.1E-03	--	--	--	--	--	--	--	--	--	--	na	3.1E-03
DDE[C]	0	--	--	na	2.2E-03	--	--	na	2.2E-03	--	--	--	--	--	--	--	--	--	--	na	2.2E-03
DDT[C]	0	1.1E+00	1.0E-03	na	2.2E-03	1.1E+00	1.0E-03	na	2.2E-03	--	--	--	--	--	--	--	--	1.1E+00	1.0E-03	na	2.2E-03
Demeton	0	--	1.0E-01	na	--	--	1.0E-01	na	--	--	--	--	--	--	--	--	--	--	1.0E-01	na	--
Diazinon	0	1.7E-01	1.7E-01	na	--	1.7E-01	1.7E-01	na	--	--	--	--	--	--	--	--	--	1.7E-01	1.7E-01	na	--
Dibenz(a,h)anthracene[C]	0	--	--	na	1.8E-01	--	--	na	1.8E-01	--	--	--	--	--	--	--	--	--	--	na	1.8E-01
1,2-Dichlorobenzene	0	--	--	na	1.3E+03	--	--	na	1.3E+03	--	--	--	--	--	--	--	--	--	--	na	1.3E+03
1,3-Dichlorobenzene	0	--	--	na	9.6E+02	--	--	na	9.6E+02	--	--	--	--	--	--	--	--	--	--	na	9.6E+02
1,4-Dichlorobenzene	0	--	--	na	1.9E+02	--	--	na	1.9E+02	--	--	--	--	--	--	--	--	--	--	na	1.9E+02
3,3-Dichlorobenzidine[C]	0	--	--	na	2.8E-01	--	--	na	2.8E-01	--	--	--	--	--	--	--	--	--	--	na	2.8E-01
Dichlorobromomethane[C]	0	--	--	na	1.7E+02	--	--	na	1.7E+02	--	--	--	--	--	--	--	--	--	--	na	1.7E+02
1,2-Dichloroethane[C]	0	--	--	na	3.7E+02	--	--	na	3.7E+02	--	--	--	--	--	--	--	--	--	--	na	3.7E+02
1,1-Dichloroethylene	0	--	--	na	7.1E+03	--	--	na	7.1E+03	--	--	--	--	--	--	--	--	--	--	na	7.1E+03
1,2-trans-dichloroethylene	0	--	--	na	1.0E+04	--	--	na	1.0E+04	--	--	--	--	--	--	--	--	--	--	na	1.0E+04
2,4-Dichlorophenol	0	--	--	na	2.9E+02	--	--	na	2.9E+02	--	--	--	--	--	--	--	--	--	--	na	2.9E+02
2,4-Dichlorophenoxy acetic acid (2,4-D)	0	--	--	na	--	--	--	na	--	--	--	--	--	--	--	--	--	--	--	na	--
1,2-Dichloropropane[C]	0	--	--	na	1.5E+02	--	--	na	1.5E+02	--	--	--	--	--	--	--	--	--	--	na	1.5E+02
1,3-Dichloropropene[C]	0	--	--	na	2.1E+02	--	--	na	2.1E+02	--	--	--	--	--	--	--	--	--	--	na	2.1E+02
Dieldrin[C]	0	2.4E-01	5.6E-02	na	5.4E-04	2.4E-01	5.6E-02	na	5.4E-04	--	--	--	--	--	--	--	--	2.4E-01	5.6E-02	na	5.4E-04
Diethyl Phthalate	0	--	--	na	4.4E+04	--	--	na	4.4E+04	--	--	--	--	--	--	--	--	--	--	na	4.4E+04
2,4-Dimethylphenol	0	--	--	na	8.5E+02	--	--	na	8.5E+02	--	--	--	--	--	--	--	--	--	--	na	8.5E+02
Dimethyl Phthalate	0	--	--	na	1.1E+06	--	--	na	1.1E+06	--	--	--	--	--	--	--	--	--	--	na	1.1E+06
Di-n-Butyl Phthalate	0	--	--	na	4.5E+03	--	--	na	4.5E+03	--	--	--	--	--	--	--	--	--	--	na	4.5E+03
2,4 Dinitrophenol	0	--	--	na	5.3E+03	--	--	na	5.3E+03	--	--	--	--	--	--	--	--	--	--	na	5.3E+03
2-Methyl-4,6-Dinitrophenol	0	--	--	na	2.8E+02	--	--	na	2.8E+02	--	--	--	--	--	--	--	--	--	--	na	2.8E+02
2,4-Dinitrotoluene[C]	0	--	--	na	3.4E+01	--	--	na	3.4E+01	--	--	--	--	--	--	--	--	--	--	na	3.4E+01
Dioxin 2,3,7,8-tetrachlorodibenzo-p-dioxin	0	--	--	na	5.1E-08	--	--	na	5.1E-08	--	--	--	--	--	--	--	--	--	--	na	5.1E-08
1,2-Diphenylhydrazine[C]	0	--	--	na	2.0E+00	--	--	na	2.0E+00	--	--	--	--	--	--	--	--	--	--	na	2.0E+00
Alpha-Endosulfan	0	2.2E-01	5.6E-02	na	8.9E+01	2.2E-01	5.6E-02	na	8.9E+01	--	--	--	--	--	--	--	--	2.2E-01	5.6E-02	na	8.9E+01
Beta-Endosulfan	0	2.2E-01	5.6E-02	na	8.9E+01	2.2E-01	5.6E-02	na	8.9E+01	--	--	--	--	--	--	--	--	2.2E-01	5.6E-02	na	8.9E+01
Alpha + Beta Endosulfan	0	2.2E-01	5.6E-02	--	--	2.2E-01	5.6E-02	--	--	--	--	--	--	--	--	--	--	2.2E-01	5.6E-02	--	--
Endosulfan Sulfate	0	--	--	na	8.9E+01	--	--	na	8.9E+01	--	--	--	--	--	--	--	--	--	--	na	8.9E+01
Endrin	0	8.6E-02	3.6E-02	na	6.0E-02	8.6E-02	3.6E-02	na	6.0E-02	--	--	--	--	--	--	--	--	8.6E-02	3.6E-02	na	6.0E-02
Endrin Aldehyde	0	--	--	na	3.0E-01	--	--	na	3.0E-01	--	--	--	--	--	--	--	--	--	--	na	3.0E-01

Parameter	Background	Water Quality Criteria				Wasteload Allocations				Antidegradation Baseline				Antidegradation Allocations				Most Limiting Allocations			
(ug/l unless noted)	Conc.	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH
Ethylbenzene	0	--	--	na	2.1E+03	--	--	na	2.1E+03	--	--	--	--	--	--	--	--	--	--	na	2.1E+03
Fluoranthene	0	--	--	na	1.4E+02	--	--	na	1.4E+02	--	--	--	--	--	--	--	--	--	--	na	1.4E+02
Fluorene	0	--	--	na	5.3E+03	--	--	na	5.3E+03	--	--	--	--	--	--	--	--	--	--	na	5.3E+03
Foaming Agents	0	--	--	na	--	--	--	na	--	--	--	--	--	--	--	--	--	--	--	na	--
Guthion	0	--	1.0E-02	na	--	--	1.0E-02	na	--	--	--	--	--	--	--	--	--	--	1.0E-02	na	--
Heptachlor [C]	0	5.2E-01	3.8E-03	na	7.9E-04	5.2E-01	3.8E-03	na	7.9E-04	--	--	--	--	--	--	--	--	5.2E-01	3.8E-03	na	7.9E-04
Heptachlor Epoxide [C]	0	5.2E-01	3.8E-03	na	3.9E-04	5.2E-01	3.8E-03	na	3.9E-04	--	--	--	--	--	--	--	--	5.2E-01	3.8E-03	na	3.9E-04
Hexachlorobenzene [C]	0	--	--	na	2.9E-03	--	--	na	2.9E-03	--	--	--	--	--	--	--	--	--	--	na	2.9E-03
Hexachlorobutadiene [C]	0	--	--	na	1.8E+02	--	--	na	1.8E+02	--	--	--	--	--	--	--	--	--	--	na	1.8E+02
Hexachlorocyclohexane Alpha-BHC [C]	0	--	--	na	4.9E-02	--	--	na	4.9E-02	--	--	--	--	--	--	--	--	--	--	na	4.9E-02
Hexachlorocyclohexane Beta-BHC [C]	0	--	--	na	1.7E-01	--	--	na	1.7E-01	--	--	--	--	--	--	--	--	--	--	na	1.7E-01
Hexachlorocyclohexane Gamma-BHC [C] (Lindane)	0	9.5E-01	na	na	1.8E+00	9.5E-01	--	na	1.8E+00	--	--	--	--	--	--	--	--	9.5E-01	--	na	1.8E+00
Hexachlorocyclopentadiene	0	--	--	na	1.1E+03	--	--	na	1.1E+03	--	--	--	--	--	--	--	--	--	--	na	1.1E+03
Hexachloroethane [C]	0	--	--	na	3.3E+01	--	--	na	3.3E+01	--	--	--	--	--	--	--	--	--	--	na	3.3E+01
Hydrogen Sulfide	0	--	2.0E+00	na	--	--	2.0E+00	na	--	--	--	--	--	--	--	--	--	--	2.0E+00	na	--
Indeno (1,2,3-cd) pyrene [C]	0	--	--	na	1.8E-01	--	--	na	1.8E-01	--	--	--	--	--	--	--	--	--	--	na	1.8E-01
Iron	0	--	--	na	--	--	--	na	--	--	--	--	--	--	--	--	--	--	--	na	--
Isophorone [C]	0	--	--	na	9.6E+03	--	--	na	9.6E+03	--	--	--	--	--	--	--	--	--	--	na	9.6E+03
Kepone	0	--	0.0E+00	na	--	--	0.0E+00	na	--	--	--	--	--	--	--	--	--	--	0.0E+00	na	--
Lead	0	4.9E+01	5.6E+00	na	--	4.9E+01	5.6E+00	na	--	--	--	--	--	--	--	--	--	4.9E+01	5.6E+00	na	--
Malathion	0	--	1.0E-01	na	--	--	1.0E-01	na	--	--	--	--	--	--	--	--	--	--	1.0E-01	na	--
Manganese	0	--	--	na	--	--	--	na	--	--	--	--	--	--	--	--	--	--	--	na	--
Mercury	0	1.4E+00	7.7E-01	--	--	1.4E+00	7.7E-01	--	--	--	--	--	--	--	--	--	--	1.4E+00	7.7E-01	--	--
Methyl Bromide	0	--	--	na	1.5E+03	--	--	na	1.5E+03	--	--	--	--	--	--	--	--	--	--	na	1.5E+03
Methylene Chloride [C]	0	--	--	na	5.9E+03	--	--	na	5.9E+03	--	--	--	--	--	--	--	--	--	--	na	5.9E+03
Methoxychlor	0	--	3.0E-02	na	--	--	3.0E-02	na	--	--	--	--	--	--	--	--	--	--	3.0E-02	na	--
Mirex	0	--	0.0E+00	na	--	--	0.0E+00	na	--	--	--	--	--	--	--	--	--	--	0.0E+00	na	--
Nickel	0	1.0E+02	1.1E+01	na	4.6E+03	1.0E+02	1.1E+01	na	4.6E+03	--	--	--	--	--	--	--	--	1.0E+02	1.1E+01	na	4.6E+03
Nitrate (as N)	0	--	--	na	--	--	--	na	--	--	--	--	--	--	--	--	--	--	--	na	--
Nitrobenzene	0	--	--	na	6.9E+02	--	--	na	6.9E+02	--	--	--	--	--	--	--	--	--	--	na	6.9E+02
N-Nitrosodimethylamine [C]	0	--	--	na	3.0E+01	--	--	na	3.0E+01	--	--	--	--	--	--	--	--	--	--	na	3.0E+01
N-Nitrosodiphenylamine [C]	0	--	--	na	6.0E+01	--	--	na	6.0E+01	--	--	--	--	--	--	--	--	--	--	na	6.0E+01
N-Nitrosodi-n-propylamine [C]	0	--	--	na	5.1E+00	--	--	na	5.1E+00	--	--	--	--	--	--	--	--	--	--	na	5.1E+00
Nonylphenol	0	2.8E+01	6.6E+00	--	--	2.8E+01	6.6E+00	na	--	--	--	--	--	--	--	--	--	2.8E+01	6.6E+00	na	--
Parathion	0	6.5E-02	1.3E-02	na	--	6.5E-02	1.3E-02	na	--	--	--	--	--	--	--	--	--	6.5E-02	1.3E-02	na	--
PCB Total [C]	0	--	1.4E-02	na	6.4E-04	--	1.4E-02	na	6.4E-04	--	--	--	--	--	--	--	--	--	1.4E-02	na	6.4E-04
Pentachlorophenol [C]	0	7.7E-03	5.9E-03	na	3.0E+01	7.7E-03	5.9E-03	na	3.0E+01	--	--	--	--	--	--	--	--	7.7E-03	5.9E-03	na	3.0E+01
Phenol	0	--	--	na	8.6E+05	--	--	na	8.6E+05	--	--	--	--	--	--	--	--	--	--	na	8.6E+05
Pyrene	0	--	--	na	4.0E+03	--	--	na	4.0E+03	--	--	--	--	--	--	--	--	--	--	na	4.0E+03
Radionuclides	0	--	--	na	--	--	--	na	--	--	--	--	--	--	--	--	--	--	--	na	--
Gross Alpha Activity (pCi/L)	0	--	--	na	--	--	--	na	--	--	--	--	--	--	--	--	--	--	--	na	--
Beta and Photon Activity (mrem/yr)	0	--	--	na	4.0E+00	--	--	na	4.0E+00	--	--	--	--	--	--	--	--	--	--	na	4.0E+00
Radium 226 + 228 (pCi/L)	0	--	--	na	--	--	--	na	--	--	--	--	--	--	--	--	--	--	--	na	--
Uranium (ug/l)	0	--	--	na	--	--	--	na	--	--	--	--	--	--	--	--	--	--	--	na	--

Parameter (ug/l unless noted)	Background Conc.	Water Quality Criteria				Wasteload Allocations				Antidegradation Baseline				Antidegradation Allocations				Most Limiting Allocations			
		Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH
Selenium, Total Recoverable	0	2.0E+01	5.0E+00	na	4.2E+03	2.0E+01	5.0E+00	na	4.2E+03	--	--	--	--	--	--	--	--	**2.0E+01**	**5.0E+00**	**na**	**4.2E+03**
Silver	0	1.0E+00	--	na	--	1.0E+00	--	na	--	--	--	--	--	--	--	--	--	**1.0E+00**	**--**	**na**	**--**
Sulfate	0	--	--	na	--	--	--	na	--	--	--	--	--	--	--	--	--	**--**	**--**	**na**	**--**
1,1,2,2-Tetrachloroethane[C]	0	--	--	na	4.0E+01	--	--	na	4.0E+01	--	--	--	--	--	--	--	--	**--**	**--**	**na**	**4.0E+01**
Tetrachloroethylene[C]	0	--	--	na	3.3E+01	--	--	na	3.3E+01	--	--	--	--	--	--	--	--	**--**	**--**	**na**	**3.3E+01**
Thallium	0	--	--	na	4.7E-01	--	--	na	4.7E-01	--	--	--	--	--	--	--	--	**--**	**--**	**na**	**4.7E-01**
Toluene	0	--	--	na	6.0E+03	--	--	na	6.0E+03	--	--	--	--	--	--	--	--	**--**	**--**	**na**	**6.0E+03**
Total dissolved solids	0	--	--	na	--	--	--	na	--	--	--	--	--	--	--	--	--	**--**	**--**	**na**	**--**
Toxaphene [C]	0	7.3E-01	2.0E-04	na	2.8E-03	7.3E-01	2.0E-04	na	2.8E-03	--	--	--	--	--	--	--	--	**7.3E-01**	**2.0E-04**	**na**	**2.8E-03**
Tributyltin	0	4.6E-01	7.2E-02	na	--	4.6E-01	7.2E-02	na	--	--	--	--	--	--	--	--	--	**4.6E-01**	**7.2E-02**	**na**	**--**
1,2,4-Trichlorobenzene	0	--	--	na	7.0E+01	--	--	na	7.0E+01	--	--	--	--	--	--	--	--	**--**	**--**	**na**	**7.0E+01**
1,1,2-Trichloroethane[C]	0	--	--	na	1.6E+02	--	--	na	1.6E+02	--	--	--	--	--	--	--	--	**--**	**--**	**na**	**1.6E+02**
Trichloroethylene [C]	0	--	--	na	3.0E+02	--	--	na	3.0E+02	--	--	--	--	--	--	--	--	**--**	**--**	**na**	**3.0E+02**
2,4,6-Trichlorophenol [C]	0	--	--	na	2.4E+01	--	--	na	2.4E+01	--	--	--	--	--	--	--	--	**--**	**--**	**na**	**2.4E+01**
2-(2,4,5-Trichlorophenoxy) propionic acid (Silvex)	0	--	--	na	--	--	--	na	--	--	--	--	--	--	--	--	--	**--**	**--**	**na**	**--**
Vinyl Chloride[C]	0	--	--	na	2.4E+01	--	--	na	2.4E+01	--	--	--	--	--	--	--	--	**--**	**--**	**na**	**2.4E+01**
Zinc	0	6.5E+01	6.6E+01	na	2.6E+04	6.5E+01	6.6E+01	na	2.6E+04	--	--	--	--	--	--	--	--	**6.5E+01**	**6.6E+01**	**na**	**2.6E+04**

Notes:

1. All concentrations expressed as micrograms/liter (ug/l), unless noted otherwise
2. Discharge flow is highest monthly average or Form 2C maximum for Industries and design flow for Municipals
3. Metals measured as Dissolved, unless specified otherwise
4. "C" indicates a carcinogenic parameter
5. Regular WLAs are mass balances (minus background concentration) using the % of stream flow entered above under Mixing Information.
   Antidegradation WLAs are based upon a complete mix.
6. Antideg. Baseline = (0.25(WQC - background conc.) + background conc.) for acute and chronic
   = (0.1(WQC - background conc.) + background conc.) for human health
7. WLAs established at the following stream flows: 1Q10 for Acute, 30Q10 for Chronic Ammonia, 7Q10 for Other Chronic, 30Q5 for Non-carcinogens and Harmonic Mean for Carcinogens. To apply mixing ratios from a model set the stream flow equal to (mixing ratio - 1), effluent flow equal to 1 and 100% mix.

Metal	Target Value (SSTV)
Antimony	6.4E+02
Arsenic	9.0E+01
Barium	na
Cadmium	3.9E-01
Chromium III	2.5E+01
Chromium VI	6.4E+00
Copper	2.8E+00
Iron	na
Lead	3.4E+00
Manganese	na
Mercury	4.6E-01
Nickel	6.8E+00
Selenium	3.0E+00
Silver	4.2E-01
Zinc	2.6E+01

Note: do not use QL's lower than the minimum QL's provided in agency guidance

VA0068586 Culpeper County Industrial Airpark WWTP

Date	pH (su)	Temperature (degree C)
March 31, 2011	7.22	9.8
March 30, 2011	7.29	10.3
March 29, 2011	7.23	9.4
March 28, 2011	7.83	8.7
March 24, 2011	7.66	12
March 23, 2011	7.47	12
March 22, 2011	7.19	12
March 21, 2011	7.62	11.5
March 17, 2011	7.33	10.6
March 16, 2011	7.29	10.5
March 15, 2011	7.22	10
March 14, 2011	7.56	9.9
March 13, 2011	7.68	10.1
March 12, 2011	7.28	9.8
March 11, 2011	7.02	10.4
March 10, 2011	7.39	10.6
March 9, 2011	7.55	9.8
March 8, 2011	7.28	9.8
March 7, 2011	7.25	9.8
March 6, 2011	7.41	11.5
March 5, 2011	7.39	11.4
March 3, 2011	7.47	10.2
March 2, 2011	7.51	9.8
March 1, 2011	7.16	10.2
February 28, 2011	7.45	8.7
February 27, 2011	7.65	8.6
February 25, 2011	7.52	10.1
February 24, 2011	7.6	7.3
February 23, 2011	7.59	8.7
February 22, 2011	7.38	8.6
February 21, 2011	8.05	8.1

Note: The facility does not discharge every day. Only the days that the facility discharged and provided effluent data are presented here. The daily log have been placed in the reissuance file.

90th percentile pH: 7.9

90th percentile temperature (annual): 22.09

90th percentile temperature (Nov-Apr): 15

February 17, 2011	7.51	9.1
February 16, 2011	7.97	9.7
February 15, 2011	7.04	8.3
February 14, 2011	7.77	6.4
February 9, 2011	7.51	7.3
February 8, 2011	7.53	8.7
February 7, 2011	7.5	9
February 6, 2011	7.73	9.2
February 5, 2011	7.46	8.9
February 4, 2011	7.32	9.9
February 3, 2011	7.4	8.8
February 2, 2011	7.05	9.1
February 1, 2011	7.43	8.1
January 31, 2011	8.31	7.8
January 29, 2011	7.42	7.4
January 28, 2011	7.77	6.2
January 26, 2011	7.81	7.3
January 25, 2011	7.2	11.5
January 24, 2011	7.35	6.3
January 23, 2011	8.08	3.1
January 20, 2011	7.56	9.2
January 19, 2011	7.35	8.4
January 18, 2011	7.42	7.3
January 17, 2011	7.61	6.1
January 13, 2011	7.95	6.1
January 12, 2011	7.75	6.9
January 11, 2011	7.32	7
January 10, 2011	8.52	4.4
January 6, 2011	7.11	9.1
January 5, 2011	8.2	8.5
January 4, 2011	8.07	8.7
January 3, 2011	7.78	6.6
December 30, 2010	7.55	7.6
December 29, 2010	7.38	7.8

December 28, 2010	7.5	6.8
December 27, 2010	7.61	4.1
December 23, 2010	7.56	9.1
December 22, 2010	7.61	7.6
December 21, 2010	7.53	4.2
December 20, 2010	7.66	4.6
December 17, 2010	7.43	8.8
December 16, 2010	7.1	8.6
December 15, 2010	7.35	5.6
December 14, 2010	7.47	8
December 13, 2010	7.61	10.4
December 12, 2010	8.06	7.4
December 9, 2010	7.69	9.3
December 8, 2010	7.75	9.5
December 7, 2010	7.59	10.3
December 6, 2010	7.96	7.4
December 2, 2010	7.76	13.6
December 1, 2010	7.62	13.5
November 29, 2010	7.44	10.3
November 23, 2010	7.47	15
November 22, 2010	7.75	12.4
November 19, 2010	7.36	15
November 18, 2010	7.28	15.7
November 17, 2010	7.29	16.1
November 16, 2010	7.72	14.1
November 15, 2010	7.78	11.5
November 11, 2010	7.02	14.9
November 10, 2010	7.37	17.2
November 8, 2010	7.82	11.6
November 4, 2010	7.32	15.2
November 3, 2010	6.93	14.7
November 2, 2010	7.19	15.4
November 1, 2010	7.74	13.6
October 28, 2010	7.21	19.7

October 27, 2010	7.03	19.6
October 26, 2010	6.79	18.3
October 25, 2010	7.55	15.6
October 21, 2010	7.28	17.9
October 20, 2010	7.98	17.2
October 19, 2010	7.28	17.9
October 18, 2010	7.34	16
October 14, 2010	7.15	19.1
October 13, 2010	7.81	18.7
October 12, 2010	7.33	19.3
October 11, 2010	7.37	19
October 7, 2010	7.11	18.7
October 6, 2010	7.34	18.5
October 5, 2010	7.19	18.9
October 4, 2010	7.74	17.6
October 2, 2010	7.23	20.2
October 1, 2010	7.16	21
September 30, 2010	7.18	20.7
September 29, 2010	7.64	20.9
September 28, 2010	7.9	21.6
September 27, 2010	8.02	21
September 23, 2010	7.7	21.4
September 22, 2010	7.28	21.3
September 21, 2010	7.84	20.8
September 20, 2010	8.04	21.1
September 16, 2010	7.5	21.7
September 15, 2010	7.69	20.7
September 14, 2010	7.35	21.3
September 13, 2010	8.25	20.6
September 10, 2010	7.4	21.2
September 9, 2010	7.18	22
September 8, 2010	7.37	22.9
September 7, 2010	7.62	22.1
September 3, 2010	7.71	25

September 1, 2010	6.88	24.6
August 31, 2010	7.48	24.5
August 30, 2010	7.71	24.1
August 27, 2010	7.65	23.3
August 26, 2010	8.15	22.5
August 25, 2010	7.58	22.9
August 24, 2010	7.2	23.4
August 23, 2010	7.51	24.8
August 20, 2010	7.28	23.9
August 19, 2010	7.41	23.5
August 17, 2010	7.18	24.1
August 16, 2010	7.55	23.7
August 15, 2010	7.28	23.6
August 14, 2010	7.14	23.4
August 13, 2010	7.16	24.2
August 12, 2010	7.09	25.2
August 11, 2010	7.72	24.8
July 14, 2010	7.14	23
July 13, 2010	7.77	23.3
July 12, 2010	7.82	23.1
July 10, 2010	7.31	24.1
July 9, 2010	7.28	23.8
July 8, 2010	7.97	22.8
July 7, 2010	7.56	22.7
July 6, 2010	7.71	21.8
July 5, 2010	7.4	24.3
July 2, 2010	7.5	20.9
July 1, 2010	7.4	21.4
June 30, 2010	7.74	24.4
June 29, 2010	7.22	25.2
June 28, 2010	7.19	25.3
June 25, 2010	7.26	22.3
June 24, 2010	7.63	22.3
June 23, 2010	7.98	21.8

June 22, 2010	7.24	21.2
June 21, 2010	7.58	22.9
June 18, 2010	7.23	23.1
June 17, 2010	7.48	21
June 16, 2010	7.31	20.8
June 15, 2010	7.26	20.9
June 14, 2010	7.57	22.6
June 11, 2010	7.23	20.3
June 10, 2010	7.86	19.8
June 9, 2010	7.86	19
June 8, 2010	7	19.2
June 7, 2010	7.55	21.3
June 4, 2010	7.52	20
June 3, 2010	7.26	19.8
June 2, 2010	7.1	19.6
June 1, 2010	7.55	21.7
May 29, 2010	6.89	20.7
May 27, 2010	7.2	18.9
May 26, 2010	6.9	18
May 25, 2010	7	18
May 24, 2010	7	17.4
May 23, 2010	7.12	17.4
May 22, 2010	7.77	16.9
May 20, 2010	7.22	16.2
May 19, 2010	7.1	16.1
May 18, 2010	6.91	15.9
May 17, 2010	7.23	17.6
May 14, 2010	7.37	15.9
May 13, 2010	7.53	15.7
May 12, 2010	7.34	15.1
May 11, 2010	7.06	14.9
May 10, 2010	7.94	14.9
May 7, 2010	7.2	16.8
May 6, 2010	7.28	16.9

May 5, 2010	7.25	16.7
May 4, 2010	7.47	16.5
May 3, 2010	8.36	18.7
April 30, 2010	8.05	13.2
April 29, 2010	7.2	13.7
April 28, 2010	7.47	13.6
April 27, 2010	7.25	15
April 26, 2010	7.27	15.4
April 23, 2010	7.71	14.3
April 22, 2010	7.82	14.4
April 21, 2010	7.93	13.9
April 20, 2010	7.91	13.7
April 19, 2010	7.93	13.3
April 16, 2010	7.85	14.2
April 15, 2010	7.24	13.6
April 14, 2010	7.2	13.4
April 13, 2010	7.42	13.5
April 9, 2010	7.94	14.7
April 8, 2010	7.65	15.1
April 7, 2010	7.94	15
April 6, 2010	7.1	14.5
April 5, 2010	7.32	14.6
April 2, 2010	7.28	12.7
April 1, 2010	7.42	12.2
March 31, 2010	8.03	10.7
March 30, 2010	7.2	10.9
March 29, 2010	8.21	10.6
March 26, 2010	7.33	12.2
March 25, 2010	7.23	12
March 24, 2010	7.69	11.6
March 23, 2010	7.61	12.1
March 22, 2010	7.15	12.7
March 21, 2010	7.11	9.6
March 19, 2010	7.25	10.7

March 18, 2010	7	10.9
March 17, 2010	7.65	9.8
March 16, 2010	7.25	10
March 15, 2010	7.08	9.8
March 14, 2010	7	10
March 13, 2010	7	10.3
March 12, 2010	7	9.8
March 11, 2010	7.06	10.4
March 10, 2010	7.23	9.7
March 9, 2010	7.53	8.1
March 8, 2010	7.18	9
March 7, 2010	7.33	7.6
March 5, 2010	7.75	7.5
March 4, 2010	7.28	8.1
March 3, 2010	7.2	8.3
March 2, 2010	7.48	8.3
March 1, 2010	6.85	8.1
February 27, 2010	7.2	8.5
February 26, 2010	6.8	8.2
February 25, 2010	6.74	8.7
February 24, 2010	6.76	8.9
February 23, 2010	6.97	8.8
February 22, 2010	7.25	9
February 21, 2010	7.09	8.9
February 20, 2010	7.03	8.4
February 19, 2010	7	8.2
February 18, 2010	7.32	7.1
February 17, 2010	7	7.7
February 16, 2010	7.4	6.2
February 13, 2010	7.26	8.4
February 12, 2010	7.3	8.9
February 11, 2010	7.26	6.2
February 9, 2010	7.43	6.9
February 8, 2010	7.46	5.2

February 5, 2010	7.45	7.1
February 4, 2010	7.08	7.5
February 3, 2010	7.59	6.7
February 2, 2010	6.6	6.7
February 1, 2010	7.73	2.8
January 28, 2010	7	3.5
January 27, 2010	7.1	8.4
January 26, 2010	7.33	7.7
January 25, 2010	6.9	7.1
January 24, 2010	6.85	7.7
January 23, 2010	6.79	5.2
January 22, 2010	7.2	6.7
January 21, 2010	7.21	6
January 20, 2010	7.15	6.3
January 19, 2010	7.64	5.9
January 18, 2010	7.57	7.3
January 17, 2010	7.55	8
January 16, 2010	7.93	9
January 15, 2010	7.48	8.6
January 14, 2010	7.56	9.5
January 13, 2010	7.95	9.9
January 12, 2010	7.8	9
January 11, 2010	7.06	9.8
January 8, 2010	7.39	9.4
January 7, 2010	7.43	10.6
January 6, 2010	7.77	9.8
January 5, 2010	7	9.5
January 4, 2010	8.07	9.5
December 30, 2009	7.23	10.1
December 29, 2009	7.1	10.4
December 28, 2009	7.2	11.2
December 27, 2009	6.96	11
December 26, 2009	7.68	8.7
December 23, 2009	7.58	8.5

December 22, 2009	7.96	8
December 18, 2009	7.22	11.5
December 17, 2009	7.9	11.7
December 16, 2009	6.75	12.4
December 15, 2009	6.71	12.7
December 14, 2009	6.88	11.1
December 11, 2009	7.37	11.9
December 10, 2009	6.96	13.7
December 9, 2009	6.51	13.1
December 8, 2009	7.1	12
December 7, 2009	7.3	11.2
December 4, 2009	7.19	13
December 3, 2009	7.19	14.3
December 2, 2009	7.65	12.8
December 1, 2009	7.42	17.4
November 30, 2009	7.48	13
November 25, 2009	7.3	15.4
November 24, 2009	7.15	15.3
November 23, 2009	7.29	14.9
November 20, 2009	7.37	16
November 19, 2009	7	15.7
November 18, 2009	7.73	15
November 17, 2009	7.05	15.7
November 16, 2009	7.22	16
November 13, 2009	7.56	15
November 12, 2009	6.7	15.2
November 11, 2009	7.41	16.1
November 10, 2009	7.84	15.4
November 9, 2009	7.15	14.9
November 8, 2009	8.16	13.3
November 5, 2009	7.02	17.5
November 4, 2009	7.15	16.3
November 3, 2009	7.25	16.5
November 2, 2009	7.33	17.4

October 30, 2009	7.23	18.3
October 29, 2009	7.11	18.4
October 28, 2009	6.98	18.3
October 27, 2009	7.35	18
October 26, 2009	7.2	17.3
October 23, 2009	7.52	17.2
October 22, 2009	7.28	15.1
October 21, 2009	7.43	15.1
October 20, 2009	7.66	15.1
October 19, 2009	7.44	14.3
October 16, 2009	7.25	17.1
October 15, 2009	7.25	18.2
October 14, 2009	7.34	19.1
October 13, 2009	7.11	19.4
October 12, 2009	8.31	17.7
October 11, 2009	7.43	19.2
October 10, 2009	7.89	20.7
October 9, 2009	7.89	19.9
October 8, 2009	7.93	19.2
October 6, 2009	7.48	19.5
October 5, 2009	7.34	19.6
October 2, 2009	7.76	19.8
October 1, 2009	7.14	19.4
September 30, 2009	7.28	20.2
September 29, 2009	6.38	20.6
September 28, 2009	6.37	21.9
September 26, 2009	7.45	21.8
September 25, 2009	7.39	21.9
September 24, 2009	7.81	22.1
September 23, 2009	8.34	21.9
September 22, 2009	7.5	21.6
September 21, 2009	7.67	22.1
September 18, 2009	8.07	21.6
September 17, 2009	7.62	21.7

September 16, 2009	7.42	22.1
September 15, 2009	7.55	21.7
September 14, 2009	8.24	20.8
September 11, 2009	7.51	21.3
September 10, 2009	7.48	21.6
September 9, 2009	6.78	21.9
September 8, 2009	7.49	21.7
September 4, 2009	7.92	21.9
September 3, 2009	7.2	21.4
September 2, 2009	7.85	20.5
September 1, 2009	7.1	21.6

s

The statistics for Ammonia are:
Number of values = 1
Quantification level = .2
Number < quantification = 0
Expected value = 10
Variance = 36.00001
C.V. = .6
97th percentile = 24.33418
Statistics used = Reasonable potential assumptions - Type 2 data

WINTER TIER
NOV 1 - APR 30
0.025 FLOW

The WLAs for Ammonia are:
Acute WLA = 10.89
Chronic WLA = 2.14
Human Health WLA = ----

The limits are based on chronic toxicity and 1 samples/month.

Maximum daily limit = 3.12991
Average monthly limit = 3.12991

DATA
10
Analysis of the Culpeper Co. Ind. Airpark effluent data for Ammonia

The statistics for Ammonia are:
Number of values = 1
Quantification level = .2
Number < quantification = 0
Expected value = 10
Variance = 36.00001
C.V. = .6
97th percentile = 24.33418
Statistics used = Reasonable potential assumptions - Type 2 data

SUMMER TIER
MAY 1 - OCT 31
0.075 FLOW

The WLAs for Ammonia are:
Acute WLA = 10.44
Chronic WLA = 1.45
Human Health WLA = ----

The limits are based on chronic toxicity and 1 samples/month.

Maximum daily limit = 2.120734
Average monthly limit = 2.120733

DATA
10

4/22/2011 10:26:53 AM

Facility = Culpeper Co Ind Airpark WWTP .025 MGD
Chemical = Ammonia as N (Nov-Apr)
Chronic averaging period = 30
WLAa = 10
WLAc = 2.7
Q.L. = .2
# samples/mo. = 1
# samples/wk. = 1

Summary of Statistics:

observations = 1
Expected Value = 9
Variance = 29.16
C.V. = 0.6
97th percentile daily values = 21.9007
97th percentile 4 day average = 14.9741
97th percentile 30 day average= 10.8544
< Q.L. = 0
Model used = BPJ Assumptions, type 2 data

A limit is needed based on Chronic Toxicity
Maximum Daily Limit = 5.44770925222404
Average Weekly limit = 5.44770925222404
Average Monthly LImit = 5.44770925222404

The data are:

9

4/22/2011 10:25:52 AM

Facility = Culpeper Co Ind Airpark WWTP .025 MGD
Chemical = Ammonia as N - Annual
Chronic averaging period = 30
WLAa = 10
WLAc = 1.7
Q.L. = .2
# samples/mo. = 1
# samples/wk. = 1

Summary of Statistics:

observations = 1
Expected Value = 9
Variance = 29.16
C.V. = 0.6
97th percentile daily values = 21.9007
97th percentile 4 day average = 14.9741
97th percentile 30 day average= 10.8544
< Q.L. = 0
Model used = BPJ Assumptions, type 2 data

A limit is needed based on Chronic Toxicity
Maximum Daily Limit = 3.43003915880773
Average Weekly limit = 3.43003915880773
Average Monthly LImit = 3.43003915880773

The data are:

9

4/21/2011 7:49:52 AM

Facility = Culpeper Co Industrial Airpark WWTP .025 MGD
Chemical = Total Residual Chlorine
Chronic averaging period = 4
WLAa = 0.019
WLAc = 0.011
Q.L. = .1
# samples/mo. = 30
# samples/wk. = 8

Summary of Statistics:

observations = 1
Expected Value = .2
Variance = .0144
C.V. = 0.6
97th percentile daily values = .486683
97th percentile 4 day average = .332758
97th percentile 30 day average= .241210
< Q.L. = 0
Model used = BPJ Assumptions, type 2 data

A limit is needed based on Chronic Toxicity
Maximum Daily Limit = 1.60883226245855E-02
Average Weekly limit = 9.59676626920106E-03
Average Monthly LImit = 7.9737131838758E-03

The data are:

0.2

4/21/2011 7:50:47 AM

Facility = Culpeper Co Industrial Airpark WWTP (0.075 , 0.15 , 0.30 MaD)
Chemical = Total Residual Chlorine
Chronic averaging period = 4
WLAa = 0.019
WLAc = 0.011
Q.L. = .1
# samples/mo. = 90
# samples/wk. = 23

Summary of Statistics:

observations = 1
Expected Value = .2
Variance = .0144
C.V. = 0.6
97th percentile daily values = .486683
97th percentile 4 day average = .332758
97th percentile 30 day average= .241210
< Q.L. = 0
Model used = BPJ Assumptions, type 2 data

A limit is needed based on Chronic Toxicity
Maximum Daily Limit = 1.60883226245855E-02
Average Weekly limit = 8.2932988083132E-03
Average Monthly LImit = 7.39793639872118E-03

The data are:

0.2

Attachment 7

MEMORANDUM

State Water Control Board

2111 North Hamilton Street | P. O. Box 11143 | Richmond, VA. 23230

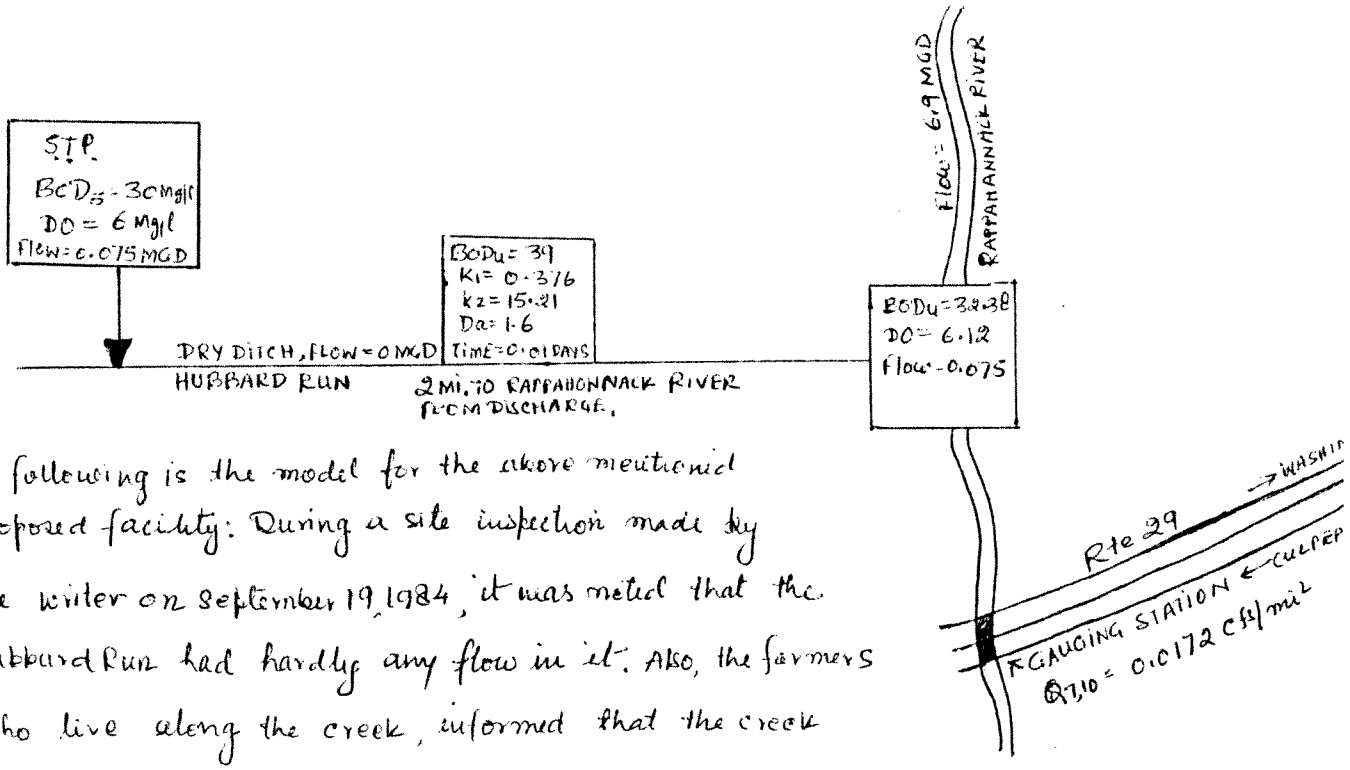
SUBJECT: Commonwealth Utilities, Culpeper County.

TO: Permit file

FROM: Rajeev Railan NRO.

DATE: September 21, 1984

COPIES: Basin file (Gary's office), D. Phillips (BWCM)



The following is the model for the above mentioned proposed facility: During a site inspection made by the writer on September 19, 1984, it was noted that the Hubbard Run had hardly any flow in it. Also, the farmers who live along the creek, informed that the creek dries out completely in the summer. So it was considered as a dry ditch with no flow for modeling purpose. The proposed facility has a design flow of 0.075 MGD and it is a package treatment plant, consisting secondary treatment using extended aeration - activated sludge process.

The $BOD_{ultimate}$ for the STP was assumed as 39 mg/l and DO_a = 6 mg/l. STP flow and dry ditch flow were mass balanced, and K_1, K_2 rates were computed. Da based upon 6 mg/l of DO, was computed as 1.6 and time, based upon 2 mi distance was computed as 0.01 days. The drainage area for the Hubbard Run was 4 sq. mi. After 2 miles, at the point where the flow of Hubbard Run (STP flow) would be discharged into Rappahannock River, it was noted that the quality of flow improved, since BODu went down to 32.38 mg/l and DO went up to 6.12 mg/l.

(Cont.)

MEMORANDUM

State Water Control Board

2111 North Hamilton Street | P. O. Box 11143 | Richmond, VA. 23230

SUBJECT: Commonwealth Utilities. (Continued)

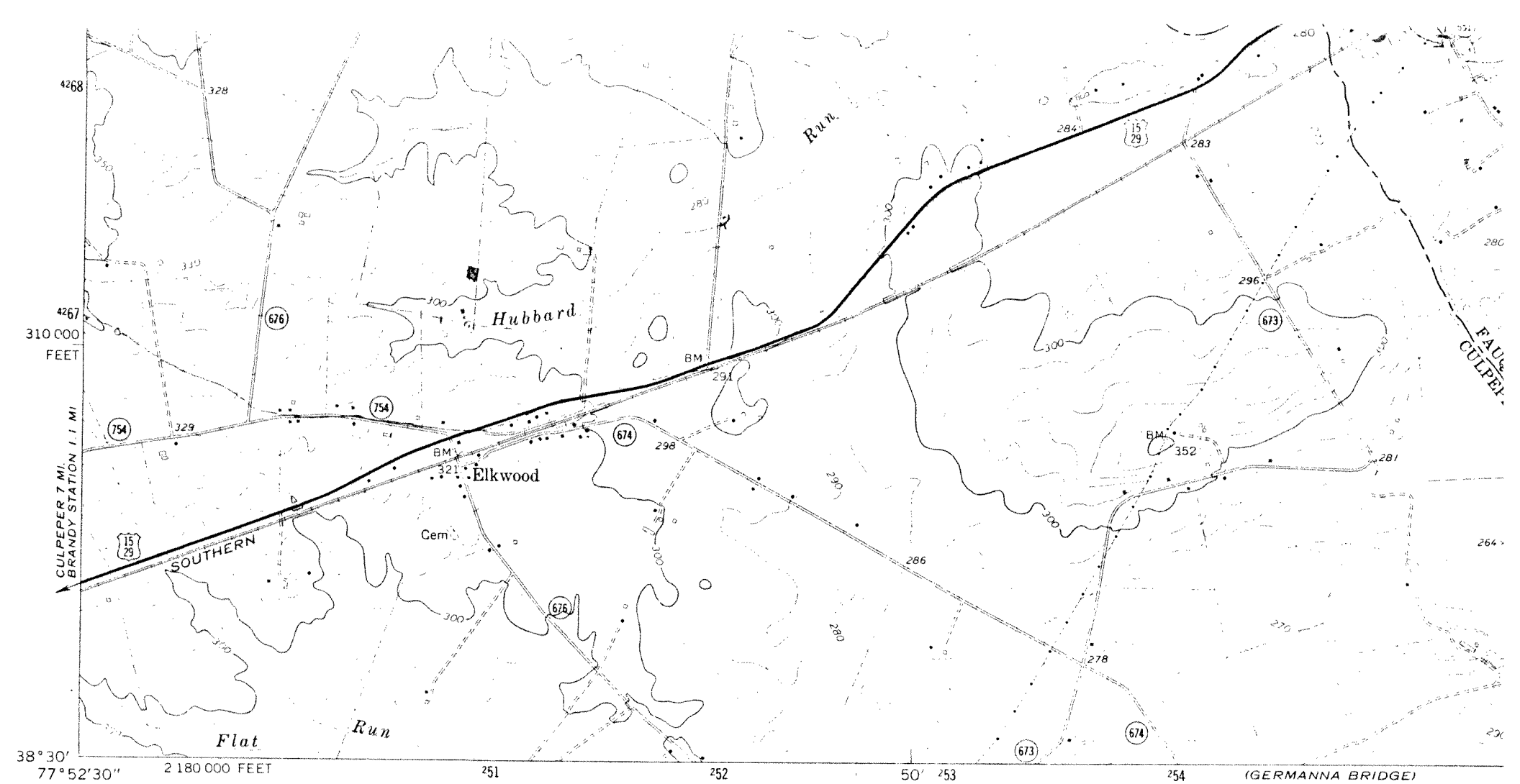
TO:

FROM:

DATE:

COPIES:

Since the flow ratio of the Rappahannock River and Hubbard Run is 92:1, no further analysis or modeling was done, specially since the water quality improved during the 8mile run.



Mapped, edited, and published by the Geological Survey

Control by USGS, USC&GS, and USCE

Topography by photogrammetric methods from aerial photographs taken 1966. Field checked 1966

Polyconic projection. 1927 North American datum
10,000-foot grid based on Virginia coordinate system, north zone
1000-meter Universal Transverse Mercator grid ticks,
zone 18, shown in blue

Fine red dashed lines indicate selected fence and field lines where generally visible on aerial photographs. This information is unchecked

MN
GN
6°
107 MILS
1°45'
31 MILS

UTM GRID AND 1966 MAGNETIC NORTH
DECLINATION AT CENTER OF SHEET

SCALE 1:24 000

1 0 1000 0 1000 2000 3000 4000 5000

CONTOUR INTERVAL 10 FEET
DATUM IS MEAN SEA LEVEL

THIS MAP COMPLIES WITH NATIONAL MAP ACCURACY STAI

FOR SALE BY U. S. GEOLOGICAL SURVEY, WASHINGTON
AND VIRGINIA DIVISION OF MINERAL RESOURCES, CHARLOTTES'

A FOLDER DESCRIBING TOPOGRAPHIC MAPS AND SYMBOLS IS AVAIL

Chlorine Modification Statement of Basis

Permit No. VA0068586 Culpeper Co. Ind. Airpark STP
Outfall No. 001
Design Flow 0.025 MGD:

Mass Balance Calculation for Chlorine Residual

Q_r = 7Q10 of receiving stream = $\dfrac{(\_\_\_\_\_ \text{in2})\ (\_\_\_\_\_ \text{cfs/mi}^2)}{(6.97)\ (1.547)}$

dry ditch

Q_r = 0 MGD

Q_w = Design flow of the STP = 0.025 MGD

C_w = Chlorine limitation of the discharge (Maximum allowable to protect water quality)

C_o = Chlorine instream value (Water Quality Standard) = 0.011 mg/l

$$C_w = \frac{(Q_r + Q_w)\ (C_o)}{Q_w} = \frac{(0 + 0.025)(0.011)}{0.025}$$

C_w = 0.011 mg/l = nondetect

If the use of a C_o of 0.011 mg/l results in a C_w value of greater than or equal to 2.0 mg/l, then the standard chlorine range of 1.0 - 2.0 mg/l with excursions and a restrictive tech. max. value should be used in the permit.

10/89

Public Notice – Environmental Permit

PURPOSE OF NOTICE: To seek public comment on a draft permit from the Department of Environmental Quality that will allow the release of treated wastewater into a water body in Culpeper County, Virginia.

PUBLIC COMMENT PERIOD: XXX, 2011 to 5:00 p.m. on XXX, 2011

PERMIT NAME: Virginia Pollutant Discharge Elimination System Permit – Wastewater issued by DEQ, under the authority of the State Water Control Board

APPLICANT NAME, ADDRESS AND PERMIT NUMBER: Culpeper County, 118 West Davis St, Ste 101, Culpeper, VA 22701, VA0068586

NAME AND ADDRESS OF FACILITY: Culpeper County Industrial Air Park STP, 13281 Airpark Drive, Culpeper VA 22701

PROJECT DESCRIPTION: Culpeper County has applied for a reissuance of a permit for the public Culpeper County Industrial Air Park STP. The applicant proposes to release treated sewage wastewaters from businesses and industrial areas at a rate of 0.025 million gallons per day into a water body. Flow tiers of 0.075, 0.15, and 0.30 million gallons per day are also included in this permit. The sludge will be disposed by hauling the sludge to the Remington WWTP for further treatment. The facility proposes to release the treated sewage water in Hubbard Run in Culpeper County in the Rappahannock watershed. A watershed is the land area drained by a river and its incoming streams. The permit will limit the following pollutants to amounts that protect water quality: pH, BOD, cBOD, TSS, Ammonia as N, Total Kjeldahl Nitrogen, Total Residual Chlorine, *E. coli,* Total Nitrogen, and Total Phosphorus.

This facility is subject to the requirements of 9 VAC 25-820 and has registered for coverage under the General VPDES Watershed Permit Regulation for Total Nitrogen and Total Phosphorus Discharges and Nutrient Trading in the Chesapeake Watershed in Virginia.

HOW TO COMMENT AND/OR REQUEST A PUBLIC HEARING: DEQ accepts comments and requests for public hearing by e-mail, fax or postal mail. All comments and requests must be in writing and be received by DEQ during the comment period. Submittals must include the names, mailing addresses and telephone numbers of the commenter/requester and of all persons represented by the commenter/requester. A request for public hearing must also include: 1) The reason why a public hearing is requested. 2) A brief, informal statement regarding the nature and extent of the interest of the requester or of those represented by the requestor, including how and to what extent such interest would be directly and adversely affected by the permit. 3) Specific references, where possible, to terms and conditions of the permit with suggested revisions. A public hearing may be held, including another comment period, if public response is significant, based on individual requests for a public hearing, and there are substantial, disputed issues relevant to the permit.

CONTACT FOR PUBLIC COMMENTS, DOCUMENT REQUESTS AND ADDITIONAL INFORMATION: The public may review the documents at the DEQ-Northern Regional Office by appointment, or may request electronic copies of the draft permit and fact sheet.
Name: Alison Thompson
Address: DEQ-Northern Regional Office, 13901 Crown Court, Woodbridge, VA 22193
Phone: (703) 583-3834 E-mail: Alison.Thompson@deq.virginia.gov Fax: (703) 583-3821

Revised 2/2003

State "Transmittal Checklist" to Assist in Targeting
Municipal and Industrial Individual NPDES Draft Permits for Review

Part I. State Draft Permit Submission Checklist

In accordance with the MOA established between the Commonwealth of Virginia and the United States Environmental Protection Agency, Region III, the Commonwealth submits the following draft National Pollutant Discharge Elimination System (NPDES) permit for Agency review and concurrence.

Facility Name:	Culpeper County Industrial Air Park STP
NPDES Permit Number:	VA0068586
Permit Writer Name:	Alison Thompson
Date:	April 22, 2011

Major [ ] **Minor** [X] **Industrial** [ ] **Municipal** [X]

I.A. Draft Permit Package Submittal Includes:	**Yes**	**No**	**N/A**
1. Permit Application?	X		
2. Complete Draft Permit (for renewal or first time permit – entire permit, including boilerplate information)?	X		
3. Copy of Public Notice?	X		
4. Complete Fact Sheet?	X		
5. A Priority Pollutant Screening to determine parameters of concern?			X
6. A Reasonable Potential analysis showing calculated WQBELs?	X		
7. Dissolved Oxygen calculations?	X		
8. Whole Effluent Toxicity Test summary and analysis?			X
9. Permit Rating Sheet for new or modified industrial facilities?			X

I.B. Permit/Facility Characteristics	**Yes**	**No**	**N/A**
1. Is this a new, or currently unpermitted facility?		X	
2. Are all permissible outfalls (including combined sewer overflow points, non-process water and storm water) from the facility properly identified and authorized in the permit?	X		
3. Does the fact sheet **or** permit contain a description of the wastewater treatment process?	X		
4. Does the review of PCS/DMR data for at least the last 3 years indicate significant non-compliance with the existing permit?		X	
5. Has there been any change in streamflow characteristics since the last permit was developed?		X	
6. Does the permit allow the discharge of new or increased loadings of any pollutants?		X	
7. Does the fact sheet **or** permit provide a description of the receiving water body(s) to which the facility discharges, including information on low/critical flow conditions and designated/existing uses?	X		
8. Does the facility discharge to a 303(d) listed water?		X	
a. Has a TMDL been developed and approved by EPA for the impaired water? Downstream	X		
b. Does the record indicate that the TMDL development is on the State priority list and will most likely be developed within the life of the permit?			X
c. Does the facility discharge a pollutant of concern identified in the TMDL or 303(d) listed water? Bacteria TMDL Downstream	X		
9. Have any limits been removed, or are any limits less stringent, than those in the current permit?		X	
10. Does the permit authorize discharges of storm water?		X	

I.B. Permit/Facility Characteristics – cont.	Yes	No	N/A
11. Has the facility substantially enlarged or altered its operation or substantially increased its flow or production?		X	
12. Are there any production-based, technology-based effluent limits in the permit?		X	
13. Do any water quality-based effluent limit calculations differ from the State's standard policies or procedures?		X	
14. Are any WQBELs based on an interpretation of narrative criteria?		X	
15. Does the permit incorporate any variances or other exceptions to the State's standards or regulations?		X	
16. Does the permit contain a compliance schedule for any limit or condition?		X	
17. Is there a potential impact to endangered/threatened species or their habitat by the facility's discharge(s)?		X	
18. Have impacts from the discharge(s) at downstream potable water supplies been evaluated?	X		
19. Is there any indication that there is significant public interest in the permit action proposed for this facility?		X	
20. Have previous permit, application, and fact sheet been examined?	X		

Part II. NPDES Draft Permit Checklist

Region III NPDES Permit Quality Checklist – for POTWs

(To be completed and included in the record only for POTWs)

II.A. Permit Cover Page/Administration	**Yes**	**No**	**N/A**
1. Does the fact sheet or permit describe the physical location of the facility, including latitude and longitude (not necessarily on permit cover page)?	X		
2. Does the permit contain specific authorization-to-discharge information (from where to where, by whom)?	X		

II.B. Effluent Limits – General Elements	**Yes**	**No**	**N/A**
1. Does the fact sheet describe the basis of final limits in the permit (e.g., that a comparison of technology and water quality-based limits was performed, and the most stringent limit selected)?	X		
2. Does the fact sheet discuss whether "antibacksliding" provisions were met for any limits that are less stringent than those in the previous NPDES permit?			X

II.C. Technology-Based Effluent Limits (POTWs)	**Yes**	**No**	**N/A**
1. Does the permit contain numeric limits for ALL of the following: BOD (or alternative, e.g., CBOD, COD, TOC), TSS, and pH?	X		
2. Does the permit require at least 85% removal for BOD (or BOD alternative) and TSS (or 65% for equivalent to secondary) consistent with 40 CFR Part 133?	X		
a. If no, does the record indicate that application of WQBELs, or some other means, results in more stringent requirements than 85% removal or that an exception consistent with 40 CFR 133.103 has been approved?			X
3. Are technology-based permit limits expressed in the appropriate units of measure (e.g., concentration, mass, SU)?	X		
4. Are permit limits for BOD and TSS expressed in terms of both long term (e.g., average monthly) and short term (e.g., average weekly) limits?	X		
5. Are any concentration limitations in the permit less stringent than the secondary treatment requirements (30 mg/l BOD5 and TSS for a 30-day average and 45 mg/l BOD5 and TSS for a 7-day average)?		X	
a. If yes, does the record provide a justification (e.g., waste stabilization pond, trickling filter, etc.) for the alternate limitations?			X

II.D. Water Quality-Based Effluent Limits	**Yes**	**No**	**N/A**
1. Does the permit include appropriate limitations consistent with 40 CFR 122.44(d) covering State narrative and numeric criteria for water quality?	X		
2. Does the fact sheet indicate that any WQBELs were derived from a completed and EPA approved TMDL? Bacteria – *E. coli*	X		
3. Does the fact sheet provide effluent characteristics for each outfall?	X		
4. Does the fact sheet document that a "reasonable potential" evaluation was performed?	X		
a. If yes, does the fact sheet indicate that the "reasonable potential" evaluation was performed in accordance with the State's approved procedures?	X		
b. Does the fact sheet describe the basis for allowing or disallowing in-stream dilution or a mixing zone?	X		
c. Does the fact sheet present WLA calculation procedures for all pollutants that were found to have "reasonable potential"?	X		
d. Does the fact sheet indicate that the "reasonable potential" and WLA calculations accounted for contributions from upstream sources (i.e., do calculations include ambient/background concentrations)?	X		
e. Does the permit contain numeric effluent limits for all pollutants for which "reasonable potential" was determined?	X		

II.D. Water Quality-Based Effluent Limits – cont.	Yes	No	N/A
5. Are all final WQBELs in the permit consistent with the justification and/or documentation provided in the fact sheet?	X		
6. For all final WQBELs, are BOTH long-term AND short-term effluent limits established?	X		
7. Are WQBELs expressed in the permit using appropriate units of measure (e.g., mass, concentration)?	X		
8. Does the record indicate that an "antidegradation" review was performed in accordance with the State's approved antidegradation policy?	X		

II.E. Monitoring and Reporting Requirements	Yes	No	N/A
1. Does the permit require at least annual monitoring for all limited parameters and other monitoring as required by State and Federal regulations?	X		
a. If no, does the fact sheet indicate that the facility applied for and was granted a monitoring waiver, AND, does the permit specifically incorporate this waiver?			
2. Does the permit identify the physical location where monitoring is to be performed for each outfall?	X		
3. Does the permit require at least annual influent monitoring for BOD (or BOD alternative) and TSS to assess compliance with applicable percent removal requirements?		X	
4. Does the permit require testing for Whole Effluent Toxicity?		X	

II.F. Special Conditions	Yes	No	N/A
1. Does the permit include appropriate biosolids use/disposal requirements?	X		
2. Does the permit include appropriate storm water program requirements?	X		

II.F. Special Conditions – cont.	Yes	No	N/A
3. If the permit contains compliance schedule(s), are they consistent with statutory and regulatory deadlines and requirements?			X
4. Are other special conditions (e.g., ambient sampling, mixing studies, TIE/TRE, BMPs, special studies) consistent with CWA and NPDES regulations?			X
5. Does the permit allow/authorize discharge of sanitary sewage from points other than the POTW outfall(s) or CSO outfalls [i.e., Sanitary Sewer Overflows (SSOs) or treatment plant bypasses]?		X	
6. Does the permit authorize discharges from Combined Sewer Overflows (CSOs)?		X	
a. Does the permit require implementation of the "Nine Minimum Controls"?			X
b. Does the permit require development and implementation of a "Long Term Control Plan"?			X
c. Does the permit require monitoring and reporting for CSO events?			X
7. Does the permit include appropriate Pretreatment Program requirements?			X

II.G. Standard Conditions	Yes	No	N/A
1. Does the **permit** contain all 40 CFR 122.41 standard conditions or the State equivalent (or more stringent) conditions?	X		

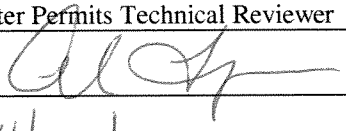
List of Standard Conditions – 40 CFR 122.41

Duty to comply	Property rights	Reporting Requirements
Duty to reapply	Duty to provide information	Planned change
Need to halt or reduce activity not a defense	Inspections and entry	Anticipated noncompliance
	Monitoring and records	Transfers
Duty to mitigate	Signatory requirement	Monitoring reports
Proper O & M	Bypass	Compliance schedules
Permit actions	Upset	24-Hour reporting
		Other non-compliance

2. Does the permit contain the additional standard condition (or the State equivalent or more stringent conditions) for POTWs regarding notification of new introduction of pollutants and new industrial users [40 CFR 122.42(b)]?	X		

Part III. Signature Page

Based on a review of the data and other information submitted by the permit applicant, and the draft permit and other administrative records generated by the Department/Division and/or made available to the Department/Division, the information provided on this checklist is accurate and complete, to the best of my knowledge.

Name	Alison Thompson
Title	Water Permits Technical Reviewer
Signature	
Date	4/22/11